Package
_default

_default
Class Add

```
java.lang.Object
   ┗-_default.Add
```

public class **Add**
extends java.lang.Object

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Constructor Summary

public	Add()

Method Summary

java.lang.Integer	add(java.lang.Integer arg0, java.lang.Integer arg1)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Add

```
public Add()
```

Methods

add

```
public java.lang.Integer add(java.lang.Integer arg0,
        java.lang.Integer arg1)
```

_default
Class AddCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-_default.AddCI
```

Direct Known Subclasses:
AddRI, AddLocal

---

public class **AddCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	AddCI()
public	AddCI(Process proc)
public	AddCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_rr(java.lang.Integer arg0, java.lang.Integer arg1)
int	add(java.lang.Integer arg0, java.lang.Integer arg1)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private _default.AddCI self
```

Constructors

AddCI

```
public AddCI()
```

AddCI

```
public AddCI(Process proc)
```

AddCI

```
public AddCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

add

```
public int add(java.lang.Integer arg0,
               java.lang.Integer arg1)
```

add_rr

```
public rResult add_rr(java.lang.Integer arg0,
                      java.lang.Integer arg1)
```

accept

```
public static void accept(OIStream in,
                          Header ohead,
                          long objID,
                          FID fid,
                          int id,
                          Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

_default
Class AddLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-_default.AddCI
         ┗-_default.AddLocal
```

public class **AddLocal**
extends AddCI

Field Summary

private	self

Fields inherited from class _default.AddCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	AddLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_rr(java.lang.Integer arg0, java.lang.Integer arg1)
int	add(java.lang.Integer arg0, java.lang.Integer arg1)
java.lang.String	getBase()

Methods inherited from class _default.AddCI

accept, add_rr, add, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private _default.Add self
```

Constructors

AddLocal

```
public AddLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

add

```
public int add(java.lang.Integer arg0,
               java.lang.Integer arg1)
```

---

add_rr

```
public rResult add_rr(java.lang.Integer arg0,
                      java.lang.Integer arg1)
```

---

accept

```
public static void accept(OIStream in,
                          Header ohead,
                          long objID,
                          FID fid,
                          int id,
                          Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

(continued from last page)

_default
Class AddRI

```
java.lang.Object
   ┗-CTL.RI
      ┗-_default.AddCI
         ┗-_default.AddRI
```

public class **AddRI**
extends AddCI

Fields inherited from class _default.AddCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	AddRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_rr(java.lang.Integer arg0, java.lang.Integer arg1)
int	add(java.lang.Integer arg0, java.lang.Integer arg1)
java.lang.String	getBase()

Methods inherited from class _default.AddCI
accept, add_rr, add, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

AddRI

```
public AddRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

add

```
public int add(java.lang.Integer arg0,
               java.lang.Integer arg1)
```

---

add_rr

```
public rResult add_rr(java.lang.Integer arg0,
                      java.lang.Integer arg1)
```

---

accept

```
public static void accept(OIStream in,
                          Header ohead,
                          long objID,
                          FID fid,
                          int id,
                          Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

_default
Class CTL_Locator

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-_default.CTL_Locator
```

public class **CTL_Locator**
extends RI

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	CTL_Locator()
public	CTL_Locator(Process proc)
public	CTL_Locator(java.lang.String arg0)
public	CTL_Locator(Process proc, java.lang.String arg0)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	get_rr(java.lang.String arg0, AnyObj arg1)
Location	get(java.lang.String arg0, AnyObj arg1)
java.lang.String	getBase()
void	moo(java.lang.Integer arg0)

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

CTL_Locator

```
public CTL_Locator()
```

CTL_Locator

```
public CTL_Locator(Process proc)
```

CTL_Locator

```
public CTL_Locator(java.lang.String arg0)
```

CTL_Locator

```
public CTL_Locator(Process proc,
                   java.lang.String arg0)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

moo

```
public void moo(java.lang.Integer arg0)
```

---

get

```
public Location get(java.lang.String arg0,
          AnyObj arg1)
```

---

get_rr

```
public rResult get_rr(java.lang.String arg0,
          AnyObj arg1)
```

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

_default
Class CTL_LocatorCTLI

```
java.lang.Object
   |
   +-_default.CTL_LocatorCTLI
```

public class **CTL_LocatorCTLI**
extends java.lang.Object

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Constructor Summary

public	CTL_LocatorCTLI()
public	CTL_LocatorCTLI(java.lang.String arg0)

Method Summary

Location	get(java.lang.String arg0, AnyObj arg1)
void	moo(java.lang.Integer arg0)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

CTL_LocatorCTLI

`public` **`CTL_LocatorCTLI`**`()`

CTL_LocatorCTLI

`public` **`CTL_LocatorCTLI`**`(java.lang.String arg0)`

Methods

moo

`public void` **`moo`**`(java.lang.Integer arg0)`

(continued from last page)

get

```
public Location get(java.lang.String arg0,
       AnyObj arg1)
```

_default
Class CTL_Registry

```
java.lang.Object
   ┗-CTL.RI
      ┗-_default.CTL_Registry
```

public class **CTL_Registry**
extends RI

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	CTL_Registry()
public	CTL_Registry(Process proc)
public	CTL_Registry(java.lang.String arg0)
public	CTL_Registry(Process proc, java.lang.String arg0)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	get_rr(java.lang.String arg0, AnyObj arg1)
Location	get(java.lang.String arg0, AnyObj arg1)
java.lang.String	getBase()
void	regist(java.lang.String arg0, AnyObj arg1, Location arg2)

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

CTL_Registry

```
public CTL_Registry()
```

CTL_Registry

```
public CTL_Registry(Process proc)
```

CTL_Registry

```
public CTL_Registry(java.lang.String arg0)
```

CTL_Registry

```
public CTL_Registry(Process proc,
                    java.lang.String arg0)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

get

```
public Location get(java.lang.String arg0,
                    AnyObj arg1)
```

---

get_rr

```
public rResult get_rr(java.lang.String arg0,
                      AnyObj arg1)
```

---

regist

```
public void regist(java.lang.String arg0,
                   AnyObj arg1,
                   Location arg2)
```

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

_default
Class CTL_RegistryCTLI

```
java.lang.Object
   |
   +-_default.CTL_RegistryCTLI
```

public class **CTL_RegistryCTLI**
extends java.lang.Object

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Constructor Summary

public	CTL_RegistryCTLI()
public	CTL_RegistryCTLI(java.lang.String arg0)

Method Summary

Location	get(java.lang.String arg0, AnyObj arg1)
void	regist(java.lang.String arg0, AnyObj arg1, Location arg2)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

CTL_RegistryCTLI

public **CTL_RegistryCTLI**()

CTL_RegistryCTLI

public **CTL_RegistryCTLI**(java.lang.String arg0)

Methods

get

public Location **get**(java.lang.String arg0,
AnyObj arg1)

(continued from last page)

regist

```
public void regist(java.lang.String arg0,
         AnyObj arg1,
         Location arg2)
```

Package
Bench

Bench
Class Latency

```
java.lang.Object
   |
   +-Bench.Latency
```

public class **Latency**
extends java.lang.Object

Latency benchmark client

Field Summary

private static final	calls Value: **100**

Constructor Summary

public	Latency()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

calls

```
private static final int calls
```

Constant value: **100**

Constructors

Latency

```
public Latency()
```

Methods

(continued from last page)

main

```
public static void main(java.lang.String[] args)
```

Bench
Class Scale

```
java.lang.Object
   |
   +-Bench.Scale
```

public class **Scale**
extends java.lang.Object

Scalability benchmark client

Constructor Summary

public	Scale()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Scale

`public` **`Scale`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Package
CodeGen

CodeGen
Class Gen

```
java.lang.Object
   |
   +-CodeGen.Gen
```

Direct Known Subclasses:
GenRI, GenLocal, GenDebug, GenCI

---

public abstract class **Gen**
extends java.lang.Object

Abstract code generator interface

Field Summary

public	cinfo
protected	constr
protected	isCTLI
protected	isForwardDecl
protected	methods
protected	modifiers
protected	name
protected	pkg
protected	prfx
protected	supername

Constructor Summary

public	Gen(java.lang.String klass) Constructor for a class from the javaSys package.
public	Gen(java.lang.String pkg, java.lang.String klass) Constructor for a class from a custom package.

Method Summary

static java.lang.String	__putRefCount() Generate a stub for putRefCount()

static java.lang.String	arrayConversion(java.lang.String type) Generated code for the conversion of an array
java.lang.String	classNamer(ClassInfo cinfo, java.lang.String suffix)
static java.lang.String	classNameToDotJavaFile(java.lang.String klas) Convert a class name to a Java source code filename
static java.lang.String	convertArray(MethodInfo minfo) Wrapper around convertArray(String)
static java.lang.String	convertArray(java.lang.String klass) Generate an array conversion expression for the given class
void	gen(java.io.OutputStreamWriter ostr)
java.lang.String	genAccept()
static void	genArgList(java.lang.StringBuffer buf, java.lang.String p, int i, int j, boolean is_constr, java.lang.annotation.Annotation[] anot) Handles one function parameter and takes care of possible array types.
java.lang.String	genConstructors()
void	generate()
java.lang.String	genHead() Generate the header of the class
static java.lang.String[]	genValue(java.lang.String retVal) Generate a *Value() call for a certain type
java.lang.String	genWrappers()
java.lang.String	getFQCN() Retrieve the full-qualified name of the class we are generating code for
static java.lang.String	getImports(java.lang.String klas) Retrieve all imported classes/packages as String
static void	getImports(java.lang.StringBuffer buf, java.lang.String klas) Retrieve the import statements from a Java source code file
boolean	isCC()
java.lang.String	linkErr() Generate code for linkage error message
static java.lang.String	newMethod(java.lang.String clname, java.lang.String funcname, int len)
static java.lang.String	newMethod(java.lang.String clname, java.lang.String funcname, int len, boolean returnme) Generate code for a new Method call
static java.lang.String	newObj(java.lang.String clname, java.lang.String arglist) See above

static java.lang.String	newObj(java.lang.String clname, java.lang.String arglist, boolean have_proc) Generate code for allocating a new RI object
static void	prettyPrint(java.io.File file) Use an external pretty printer
static void	writeTo(java.io.OutputStreamWriter out, java.lang.String str) Write a string to an output stream

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

cinfo

`public ReflWrap.ClassInfo` **`cinfo`**

constr

`protected CodeGen.Konstruktor` **`constr`**

methods

`protected CodeGen.Methode` **`methods`**

name

`protected java.lang.String` **`name`**

pkg

`protected java.lang.String` **`pkg`**

prfx

`protected java.lang.String` **`prfx`**

(continued from last page)

supername

```
protected java.lang.String supername
```

modifiers

```
protected java.lang.String modifiers
```

isForwardDecl

```
protected boolean isForwardDecl
```

isCTLI

```
protected boolean isCTLI
```

Constructors

Gen

```
public Gen(java.lang.String klass)
```

Constructor for a class from the javaSys package.

Parameters:

`klass` - Class name

Gen

```
public Gen(java.lang.String pkg,
           java.lang.String klass)
```

Constructor for a class from a custom package.

Parameters:

`pkg` - Package name
`klass` - Class name

Methods

writeTo

```
protected static void writeTo(java.io.OutputStreamWriter out,
         java.lang.String str)
  throws java.io.IOException
```

Write a string to an output stream

Parameters:

`out` - OutputStreamWriter for the output stream
`str` - String to write

classNameToDotJavaFile

```
protected static java.lang.String classNameToDotJavaFile(java.lang.String klas)
```

Convert a class name to a Java source code filename

Parameters:
`klas` - Class name

Returns:
Filename

getImports

```
protected static void getImports(java.lang.StringBuffer buf,
         java.lang.String klas)
```

Retrieve the import statements from a Java source code file

Parameters:
`klas` - Class name
`buf` - Buffer to write to

getImports

```
protected static java.lang.String getImports(java.lang.String klas)
```

Retrieve all imported classes/packages as String

Parameters:
`klas` - Name of the source class

Returns:
String

prettyPrint

```
protected static void prettyPrint(java.io.File file)
```

Use an external pretty printer

Parameters:
`file` - The File to modify

classNamer

```
protected java.lang.String classNamer(ClassInfo cinfo,
         java.lang.String suffix)
```

isCC

```
protected boolean isCC()
```

(continued from last page)

generate

```
protected void generate()
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

---

gen

```
protected void gen(java.io.OutputStreamWriter ostr)
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

---

genHead

```
protected java.lang.String genHead()
  throws java.io.IOException
```

Generate the header of the class

Returns:
Header

---

genValue

```
protected static java.lang.String[] genValue(java.lang.String retVal)
```

Generate a *Value() call for a certain type

Parameters:
`retVal` - String representation of a type

Returns:
Array of which the first String is the *Value() function name

---

genAccept

```
protected java.lang.String genAccept()
  throws java.io.IOException
```

---

genConstructors

```
protected java.lang.String genConstructors()
  throws java.io.IOException
```

---

genWrappers

```
protected java.lang.String genWrappers()
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

linkErr

```
protected java.lang.String linkErr()
```

Generate code for linkage error message

newObj

```
protected static java.lang.String newObj(java.lang.String clname,
         java.lang.String arglist,
         boolean have_proc)
```

Generate code for allocating a new RI object

Parameters:

`clname` - Class name
`arglist` - Argument list
`have_proc` - Put proc into the argument list or not

Returns:

Code

newObj

```
protected static java.lang.String newObj(java.lang.String clname,
         java.lang.String arglist)
```

See above

__putRefCount

```
protected static java.lang.String __putRefCount()
```

Generate a stub for putRefCount()

Returns:

Code

genArgList

```
protected static void genArgList(java.lang.StringBuffer buf,
         java.lang.String p,
         int i,
         int j,
         boolean is_constr,
         java.lang.annotation.Annotation[] anot)
```

Handles one function parameter and takes care of possible array types.

Parameters:

`buf` - StringBuffer to write to
`p` - Parameter type
`i` - Counter
`j` - Counter
`is_constr` - Whether or not the caller is a constructor
`anot` - Annotations belonging to the caller

(continued from last page)

newMethod

```
protected static java.lang.String newMethod(java.lang.String clname,
         java.lang.String funcname,
         int len,
         boolean returnme)
```

Generate code for a new Method call

Parameters:

`clname` - Class name
`funcname` - Function name
`len` - Number of arguments the function takes
`returnme` - Whether or not to return a value

Returns:

Code

---

newMethod

```
protected static java.lang.String newMethod(java.lang.String clname,
         java.lang.String funcname,
         int len)
```

---

getFQCN

```
protected java.lang.String getFQCN()
```

Retrieve the full-qualified name of the class we are generating code for

Returns:

Name

---

convertArray

```
protected static java.lang.String convertArray(MethodInfo minfo)
```

Wrapper around convertArray(String)

Parameters:

`minfo` - The method whose return value should be converted

Returns:

Array conversion expression

---

convertArray

```
protected static java.lang.String convertArray(java.lang.String klass)
```

Generate an array conversion expression for the given class

Parameters:

`klass` - Class name

Returns:

Array conversion expression

arrayConversion

```
protected static java.lang.String arrayConversion(java.lang.String type)
```

Generated code for the conversion of an array

Parameters:
`type` - Type of the array

Returns:
Generated code

CodeGen
Class GenCI

```
java.lang.Object
   ┗-CodeGen.Gen
      ┗-CodeGen.GenCI
```

public class **GenCI**
extends Gen

Code generator for the component interface

Field Summary

private	clname
private	libname

Fields inherited from class CodeGen.Gen

cinfo, constr, isCTLI, isForwardDecl, methods, modifiers, name, pkg, prfx, supername

Constructor Summary

public	GenCI(java.lang.String klass)

Method Summary

void	gen(java.io.OutputStreamWriter ostr)
java.lang.String	genAccept() Generate the accept() function
static java.lang.String	genAccept(Gen self)
java.lang.String	genConstructors()
java.lang.String	genGetProc()
java.lang.String	genWrappers()

Methods inherited from class CodeGen.Gen

__putRefCount, arrayConversion, classNamer, classNameToDotJavaFile, convertArray, convertArray, gen, genAccept, genArgList, genConstructors, generate, genHead, genValue, genWrappers, getFQCN, getImports, getImports, isCC, linkErr, newMethod, newMethod, newObj, newObj, prettyPrint, writeTo

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

clname

```
private java.lang.String clname
```

libname

```
private java.lang.String libname
```

Constructors

GenCI

```
public GenCI(java.lang.String klass)
```

Methods

gen

```
protected void gen(java.io.OutputStreamWriter ostr)
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

genGetProc

```
protected java.lang.String genGetProc()
  throws java.io.IOException
```

genConstructors

```
protected java.lang.String genConstructors()
  throws java.io.IOException
```

genWrappers

```
protected java.lang.String genWrappers()
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

genAccept

```
protected java.lang.String genAccept()
  throws java.io.IOException
```

Generate the accept() function

Returns:
Code

genAccept

```
protected static java.lang.String genAccept(Gen self)
  throws java.io.IOException
```

CodeGen
Class GenDebug

```
java.lang.Object
   ┗-CodeGen.Gen
      ┗-CodeGen.GenDebug
```

public class **GenDebug**
extends Gen

Generates the NameDebug components used by the Debugger

Fields inherited from class CodeGen.Gen
cinfo, constr, isCTLI, isForwardDecl, methods, modifiers, name, pkg, prfx, supername

Constructor Summary

public	GenDebug(java.lang.String klass)

Method Summary

void	gen(java.io.OutputStreamWriter ostr)
java.lang.String	genAccept()
java.lang.String	genAccept(Gen self)
java.lang.String	genHead()

Methods inherited from class CodeGen.Gen
__putRefCount, arrayConversion, classNamer, classNameToDotJavaFile, convertArray, convertArray, gen, genAccept, genArgList, genConstructors, generate, genHead, genValue, genWrappers, getFQCN, getImports, getImports, isCC, linkErr, newMethod, newMethod, newObj, newObj, prettyPrint, writeTo

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

GenDebug

```
public GenDebug(java.lang.String klass)
```

Methods

gen

```
protected void gen(java.io.OutputStreamWriter ostr)
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

---

genAccept

```
protected java.lang.String genAccept()
  throws java.io.IOException
```

---

genHead

```
protected java.lang.String genHead()
  throws java.io.IOException
```

Generate the header of the class

---

genAccept

```
protected java.lang.String genAccept(Gen self)
  throws java.io.IOException
```

CodeGen
Class GeneratedFluffFilter

```
java.lang.Object
   |
   +-CodeGen.GeneratedFluffFilter
```

All Implemented Interfaces:
java.io.FilenameFilter

---

public class **GeneratedFluffFilter**
extends java.lang.Object
implements java.io.FilenameFilter

FilenameFilter for CIs

Constructor Summary

public	GeneratedFluffFilter()

Method Summary

boolean	accept(java.io.File dir, java.lang.String name) Whether or not to accept a filename

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `java.io.FilenameFilter`

`accept`

Constructors

GeneratedFluffFilter

```
public GeneratedFluffFilter()
```

Methods

accept

```
public boolean accept(java.io.File dir,
        java.lang.String name)
```

Whether or not to accept a filename

Parameters:

(continued from last page)

`dir` - Directory name
`name` - Filename

Returns:
True or False (duh!)

CodeGen
Class GenLocal

```
java.lang.Object
   ┗-CodeGen.Gen
      ┗-CodeGen.GenLocal
```

public class **GenLocal**
extends Gen

Code generator for the local wrapper

Fields inherited from class CodeGen.Gen
cinfo, constr, isCTLI, isForwardDecl, methods, modifiers, name, pkg, prfx, supername

Constructor Summary

public	GenLocal(java.lang.String klass)

Method Summary

void	gen(java.io.OutputStreamWriter ostr)
java.lang.String	genConstructors()
java.lang.String	genWrappers()

Methods inherited from class CodeGen.Gen
__putRefCount, arrayConversion, classNamer, classNameToDotJavaFile, convertArray, convertArray, gen, genAccept, genArgList, genConstructors, generate, genHead, genValue, genWrappers, getFQCN, getImports, getImports, isCC, linkErr, newMethod, newMethod, newObj, newObj, prettyPrint, writeTo

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

GenLocal

```
public GenLocal(java.lang.String klass)
```

Methods

(continued from last page)

gen

```
protected void gen(java.io.OutputStreamWriter ostr)
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

---

genConstructors

```
protected java.lang.String genConstructors()
  throws java.io.IOException
```

---

genWrappers

```
protected java.lang.String genWrappers()
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

CodeGen
Class GenRI

```
java.lang.Object
   ┗-CodeGen.Gen
      ┗-CodeGen.GenRI
```

public class **GenRI**
extends Gen

Code generator for Java remote interfaces

Fields inherited from class CodeGen.Gen
cinfo, constr, isCTLI, isForwardDecl, methods, modifiers, name, pkg, prfx, supername

Constructor Summary

public	GenRI(java.lang.String klass)

Method Summary

java.lang.String	genAccept()
java.lang.String	genConstructors() Generate constructor wrappers
java.lang.String	genWrappers() Generate function wrappers

Methods inherited from class CodeGen.Gen
__putRefCount, arrayConversion, className, classNameToDotJavaFile, convertArray, convertArray, gen, genAccept, genArgList, genConstructors, generate, genHead, genValue, genWrappers, getFQCN, getImports, getImports, isCC, linkErr, newMethod, newMethod, newObj, newObj, prettyPrint, writeTo

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

GenRI

```
public GenRI(java.lang.String klass)
```

(continued from last page)

Methods

genConstructors

```
protected java.lang.String genConstructors()
  throws java.io.IOException
```

Generate constructor wrappers

Returns:

Code

---

genWrappers

```
protected java.lang.String genWrappers()
  throws java.io.IOException,
         java.lang.NoSuchMethodException
```

Generate function wrappers

Returns:

Code

---

genAccept

```
protected java.lang.String genAccept()
  throws java.io.IOException
```

CodeGen
Class Konstruktor

```
java.lang.Object
   |
   +-CodeGen.Konstruktor
```

public class **Konstruktor**
extends java.lang.Object

Helper class for keeping track of constructors inside CodeGen

Field Summary

private	cInfo Info wrapper
private	con The reflection constructor
private	len Number of parameters it takes
private	params Parameters this constructor takes

Constructor Summary

public	Konstruktor(java.lang.reflect.Constructor con) Default construtor

Method Summary

static Konstruktor[]	fetchAll(ClassInfo cinfo) Generate Konstruktor-objects for all constructors in a class
int	len() Number of parameters this constructor takes
java.lang.String	params() Parameters this constructor takes

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

con

private java.lang.reflect.Constructor **con**

(continued from last page)

The reflection constructor

cInfo

```
private ReflWrap.ConstructInfo cInfo
```

Info wrapper

params

```
private java.lang.String params
```

Parameters this constructor takes

len

```
private int len
```

Number of parameters it takes

Constructors

Konstruktor

```
public Konstruktor(java.lang.reflect.Constructor con)
```

Default construtor

Parameters:

con - Reflection constructor object

Methods

params

```
public java.lang.String params()
```

Parameters this constructor takes

Returns:

Parameters

len

```
public int len()
```

Number of parameters this constructor takes

Returns:

Number of parameters

fetchAll

```
public static Konstruktor[] fetchAll(ClassInfo cinfo)
```

Generate Konstruktor-objects for all constructors in a class

(continued from last page)

Parameters:

`cinfo` - Info object for the class

Returns:

Array of Konstruktor-objects

CodeGen
Class Main

```
java.lang.Object
   |
   +-CodeGen.Main
```

public class **Main**
extends java.lang.Object

CodeGen - code generator for CTL remote interfaces

Constructor Summary

public	Main()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Main

`public Main()`

Methods

main

`public static void main(java.lang.String[] args)`

CodeGen
Class Methode

```
java.lang.Object
   |
   +-CodeGen.Methode
```

public class **Methode**
extends java.lang.Object

Helper class for keeping track of methods inside CodeGen

Field Summary

private	_const Whether or not the method is const (== all parameters are const)
private	cinfo The declaring class
private	meth Reflection method object
private	minfo Info object

Constructor Summary

public	Methode(ClassInfo cinfo, java.lang.reflect.Method meth) Default constructor

Method Summary

boolean	_const() Whether or not the method is const
boolean	dont() Whether or not this method is exported
static Methode[]	fetchAll(ClassInfo cinfo) Generate Methode-objects for all methods of a class
java.lang.String	head(boolean isrResult) Generate a method header
boolean	here() Whether or not this method was declared in the class itself or inherited from superclasses
boolean	isStatic() Whether or not this method is static
boolean	isVoid() Whether or not this method is void

int	len() Number of parameters this method takes
MethodInfo	minfo() The info object
java.lang.String	modifiers() Modifiers (public, private, ...) of this method
java.lang.String	name() Name of the method
java.lang.String	params() Parameters of this method
java.lang.String	returns() Return type of this method
java.lang.String	returnsT() Return type with template parameters

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

cinfo

`private ReflWrap.ClassInfo` **`cinfo`**

The declaring class

meth

`private java.lang.reflect.Method` **`meth`**

Reflection method object

minfo

`private ReflWrap.MethodInfo` **`minfo`**

Info object

_const

`private boolean` **`_const`**

Whether or not the method is const (== all parameters are const)

Constructors

(continued from last page)

Methode

```
public Methode(ClassInfo cinfo,
               java.lang.reflect.Method meth)
```

Default constructor

Parameters:

`cinfo` - Declaring class
`meth` - Method

Methods

_const

```
public boolean _const()
```

Whether or not the method is const

Returns:

True if const, false otherwise

---

dont

```
public boolean dont()
```

Whether or not this method is exported

Returns:

False if exported, true otherwise

---

len

```
public int len()
```

Number of parameters this method takes

Returns:

Number of parameters

---

here

```
public boolean here()
```

Whether or not this method was declared in the class itself or inherited from superclasses

Returns:

True if declared locally, false otherwise

---

isVoid

```
public boolean isVoid()
```

Whether or not this method is void

Returns:

True if void, false otherwise

isStatic

```
public boolean isStatic()
```

Whether or not this method is static

Returns:
True if static, false otherwise

head

```
public java.lang.String head(boolean isrResult)
```

Generate a method header

Parameters:
`isrResult` - If true, the header for an rResult wrapper method will be generated

Returns:
Method header as String

name

```
public java.lang.String name()
```

Name of the method

Returns:
String

modifiers

```
public java.lang.String modifiers()
```

Modifiers (public, private, ...) of this method

Returns:
String

params

```
public java.lang.String params()
```

Parameters of this method

Returns:
String

returns

```
public java.lang.String returns()
```

Return type of this method

Returns:
String

returnsT

```
public java.lang.String returnsT()
```

Return type with template parameters

Returns:
String

minfo

```
public MethodInfo minfo()
```

The info object

Returns:
MethodInfo

fetchAll

```
public static Methode[] fetchAll(ClassInfo cinfo)
```

Generate Methode-objects for all methods of a class

Parameters:
`cinfo` - Java class

Returns:
Array of Methode-objects

Package
Components

Components
Class Crypt

```
java.lang.Object
   |
   +-Components.Crypt
```

public class **Crypt**
extends java.lang.Object

Cryptographic component

Field Summary

private	c Cipher to use

Constructor Summary

public	Crypt(java.lang.String cName) Default constructor

Method Summary

void	breakCipher(java.lang.String cleartxt, java.lang.String ciphertxt, java.lang.String key, int mod) Break the encryption of an encrypted file
void	createKey(java.lang.String file) Generates a new key (interactive command)
void	decrypt(java.lang.String cleartxt, java.lang.String ciphertxt, java.lang.String key) Decrypt a file
void	encrypt(java.lang.String cleartxt, java.lang.String ciphertxt, java.lang.String key) Encrypt a file

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

c

```
private de.tubs.cs.iti.krypto.chiffre.Cipher c
```

Cipher to use

Constructors

(continued from last page)

Crypt

```
public Crypt(java.lang.String cName)
```

Default constructor

Methods

createKey

```
public void createKey(java.lang.String file)
  throws java.io.IOException
```

Generates a new key (interactive command)

Parameters:

`file` - Key file

---

encrypt

```
public void encrypt(java.lang.String cleartxt,
         java.lang.String ciphertxt,
         java.lang.String key)
  throws java.io.IOException
```

Encrypt a file

Parameters:

`cleartxt` - Cleartext file
`ciphertxt` - Ciphertext file
`key` - Key file

---

decrypt

```
public void decrypt(java.lang.String cleartxt,
         java.lang.String ciphertxt,
         java.lang.String key)
  throws java.io.IOException
```

Decrypt a file

Parameters:

`cleartxt` - Cleartext file
`ciphertxt` - Ciphertext file
`key` - Key file

---

breakCipher

```
public void breakCipher(java.lang.String cleartxt,
         java.lang.String ciphertxt,
         java.lang.String key,
         int mod)
  throws java.io.IOException
```

Break the encryption of an encrypted file

Parameters:

`cleartxt` - Cleartext file
`ciphertxt` - Ciphertext file

(continued from last page)

`key` - Key file
`mod` - Modulus

Package
CTL

CTL
Class Admin

```
java.lang.Object
   ┗-CTL.ToolBase
      ┗-CTL.Admin
```

public class **Admin**
extends ToolBase

Toolbox for managing CTL4j applications and components

Field Summary

private static final	debug Value: **false**

Constructor Summary

public	Admin()

Method Summary

static void	help()
static void	main(java.lang.String[] args)
static void	quickstart()
static java.lang.String	read1()

Methods inherited from class CTL.ToolBase

findAllCIs, findCIs, findCIs, findClasses, findImpls, loadClasses, whereAmI, whereAmI

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

debug

private static final boolean **debug**

(continued from last page)

Constant value: **`false`**

Constructors

Admin

`public` **`Admin`**`()`

Methods

read1

`private static java.lang.String` **`read1`**`()`

---

help

`private static void` **`help`**`()`

---

quickstart

`private static void` **`quickstart`**`()`

---

main

`public static void` **`main`**`(java.lang.String[] args)`

CTL
Class AnyObjIdentMap

```
java.lang.Object
   |
   +-CTL.AnyObjIdentMap
```

public class **AnyObjIdentMap**
extends java.lang.Object

This class holds mappings from the in-stream type identifier strings to actual Java classes and vice versa.

Field Summary

private	ClassToStr Mapping from class to type identifier
private	StrToClass Mapping from type identifier to class

Constructor Summary

public	AnyObjIdentMap()

Method Summary

java.lang.String	get(java.lang.Class c) Get the type identifier for a class
java.lang.Class	get(java.lang.String ident) Get the class for a type identifier
void	put(java.lang.String ident, java.lang.Class c) Add a new mapping to the lists
java.lang.String	toString() Retrieve a string representation of this object

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

StrToClass

private java.util.HashMap **StrToClass**

Mapping from type identifier to class

(continued from last page)

ClassToStr

```
private java.util.HashMap ClassToStr
```

Mapping from class to type identifier

Constructors

AnyObjIdentMap

```
public AnyObjIdentMap()
```

Methods

put

```
public void put(java.lang.String ident,
         java.lang.Class c)
```

Add a new mapping to the lists

Parameters:

`ident` - Type identifier
`c` - Java class

---

get

```
public java.lang.String get(java.lang.Class c)
```

Get the type identifier for a class

Parameters:

`c` - Java class

Returns:

Type identifier

---

get

```
public java.lang.Class get(java.lang.String ident)
  throws java.lang.ClassNotFoundException
```

Get the class for a type identifier

Parameters:

`ident` - Type identifier

Returns:

Java class

---

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

(continued from last page)

Returns:

String

CTL
Class Cleaner

```
java.lang.Object
   |
   +-java.lang.Thread
         |
         +-CTL.Cleaner
```

All Implemented Interfaces:
java.lang.Runnable

---

public class **Cleaner**
extends java.lang.Thread

Terminates processes after main() finished.

Field Summary

private	thr

Fields inherited from class `java.lang.Thread`

`blocker`, `blockerLock`, `contextClassLoader`, `daemon`, `defaultUncaughtExceptionHandler`, `eetop`, `EMPTY_STACK_TRACE`, `group`, `inheritableThreadLocals`, `inheritedAccessControlContext`, `MAX_PRIORITY`, `MIN_PRIORITY`, `name`, `NORM_PRIORITY`, `priority`, `single_step`, `stackSize`, `started`, `stillborn`, `SUBCLASS_IMPLEMENTATION_PERMISSION`, `subclassAudits`, `target`, `threadInitNumber`, `threadLocals`, `threadQ`, `threadSeqNumber`, `threadStatus`, `tid`, `uncaughtExceptionHandler`

Constructor Summary

public	Cleaner(java.lang.Thread thr)

Method Summary

void	run()

Methods inherited from class `java.lang.Thread`

`activeCount`, `auditSubclass`, `blockedOn`, `checkAccess`, `countStackFrames`, `currentThread`, `destroy`, `dispatchUncaughtException`, `dumpStack`, `dumpThreads`, `enumerate`, `exit`, `getAllStackTraces`, `getContextClassLoader`, `getDefaultUncaughtExceptionHandler`, `getId`, `getName`, `getPriority`, `getStackTrace`, `getState`, `getThreadGroup`, `getThreads`, `getUncaughtExceptionHandler`, `holdsLock`, `init`, `interrupt`, `interrupt0`, `interrupted`, `isAlive`, `isCCLOverridden`, `isDaemon`, `isInterrupted`, `isInterrupted`, `join`, `join`, `join`, `nextThreadID`, `nextThreadNum`, `registerNatives`, `resume`, `resume0`, `run`, `setContextClassLoader`, `setDaemon`, `setDefaultUncaughtExceptionHandler`, `setName`, `setPriority`, `setPriority0`, `setUncaughtExceptionHandler`, `sleep`, `sleep`, `start`, `start0`, `stop`, `stop`, `stop0`, `suspend`, `suspend0`, `toString`, `yield`

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.lang.Runnable
run

Fields

thr

private java.lang.Thread **thr**

Constructors

Cleaner

public **Cleaner**(java.lang.Thread thr)

Methods

run

public void **run**()

CTL
Class ConnectHandler

```
java.lang.Object
   |
   +-java.lang.Thread
         |
         +-CTL.ConnectHandler
```

All Implemented Interfaces:
java.lang.Runnable

---

public class **ConnectHandler**
extends java.lang.Thread

Incoming connection handling thread

Field Summary

private	env

Fields inherited from class `java.lang.Thread`

`blocker`, `blockerLock`, `contextClassLoader`, `daemon`, `defaultUncaughtExceptionHandler`, `eetop`, `EMPTY_STACK_TRACE`, `group`, `inheritableThreadLocals`, `inheritedAccessControlContext`, `MAX_PRIORITY`, `MIN_PRIORITY`, `name`, `NORM_PRIORITY`, `priority`, `single_step`, `stackSize`, `started`, `stillborn`, `SUBCLASS_IMPLEMENTATION_PERMISSION`, `subclassAudits`, `target`, `threadInitNumber`, `threadLocals`, `threadQ`, `threadSeqNumber`, `threadStatus`, `tid`, `uncaughtExceptionHandler`

Constructor Summary

public	ConnectHandler(Env env)

Method Summary

void	accept(int id) Accept a connection and delegate it to a handling method
static long	argSize(Header head, FID fid) Calculates how long the argument list of a call is
static void	procRMI(OIStream in, Header head, long objID, int member, Env env) Process an RMI call
static void	procRMI(OIStream in, Header head, long objID, int member, Env env, java.lang.String suffix) Process an RMI call
void	run() Handles a connection to this process

Methods inherited from class `java.lang.Thread`

activeCount, auditSubclass, blockedOn, checkAccess, countStackFrames, currentThread, destroy, dispatchUncaughtException, dumpStack, dumpThreads, enumerate, exit, getAllStackTraces, getContextClassLoader, getDefaultUncaughtExceptionHandler, getId, getName, getPriority, getStackTrace, getState, getThreadGroup, getThreads, getUncaughtExceptionHandler, holdsLock, init, interrupt, interrupt0, interrupted, isAlive, isCCLOverridden, isDaemon, isInterrupted, isInterrupted, join, join, join, nextThreadID, nextThreadNum, registerNatives, resume, resume0, run, setContextClassLoader, setDaemon, setDefaultUncaughtExceptionHandler, setName, setPriority, setPriority0, setUncaughtExceptionHandler, sleep, sleep, start, start0, stop, stop, stop0, suspend, suspend0, toString, yield

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `java.lang.Runnable`

run

Fields

env

```
private CTL.Env env
```

Constructors

ConnectHandler

```
public ConnectHandler(Env env)
```

Methods

run

```
public void run()
```

Handles a connection to this process

accept

```
public void accept(int id)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException,
         java.lang.NoSuchMethodException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException
```

Accept a connection and delegate it to a handling method

(continued from last page)

Parameters:

`id` - Logical ID of the connecting client

argSize

```
public static long argSize(Header head,
         FID fid)
```

Calculates how long the argument list of a call is

Parameters:

`head` - Header of this package

`fid` - FunctionID of the invoked method

Returns:

Length of the argument list in bytes

procRMI

```
public static void procRMI(OIStream in,
         Header head,
         long objID,
         int member,
         Env env)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         CTLException,
         java.lang.InstantiationException
```

Process an RMI call

Parameters:

`in` - Input stream for this connection

`head` - Header of this package

`objID` - Requested ObjectID

`member` - Local group member ID

`env` - Environment information

procRMI

```
public static void procRMI(OIStream in,
         Header head,
         long objID,
         int member,
         Env env,
         java.lang.String suffix)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         CTLException,
         java.lang.InstantiationException
```

Process an RMI call

Parameters:

`in` - Input stream for this connection

`head` - Header of this package

(continued from last page)

`objID` - Requested ObjectID
`member` - Local group member ID
`env` - Environment information
`suffix` - Custom suffix to use for called Classes

CTL
Class Debug

```
java.lang.Object
   |
   +-CTL.Debug
```

public class **Debug**
extends java.lang.Object

Simple debugging output handler

Constructor Summary

public	Debug()

Method Summary

static void	RMIdump(java.lang.String type, Header head, byte[] buf) RMI debug message printer
static void	RMIdump(java.lang.String type, Header head, java.io.ByteArrayOutputStream baos) Print out debugging output for a certain RMI invocation

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Debug

```
public Debug()
```

Methods

RMIdump

```
public static void RMIdump(java.lang.String type,
                           Header head,
                           java.io.ByteArrayOutputStream baos)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Print out debugging output for a certain RMI invocation

Parameters:

(continued from last page)

`type` - Type of the RMI method (call or answer)
`head` - Header of this package
`baos` - Byte stream which this invocation generated

RMIdump

```
public static void RMIdump(java.lang.String type,
          Header head,
          byte[] buf)
  throws java.io.IOException,
          java.lang.IllegalAccessException,
          java.lang.reflect.InvocationTargetException,
          CTLException
```

RMI debug message printer

Parameters:

`type` - Type of communication
`head` - Header
`buf` - Payload

CTL
Class Env

```
java.lang.Object
   |
   +-CTL.Env
```

public class **Env**
extends java.lang.Object

Global environment

Field Summary

public static	AnyObjIdent Map of custom AnyObj identifier strings
public static	clean
public	comm Communicator
public static	daemon
public static	debugger Remote debugger
public static	debugID JVM's listening port for debuggers
private static	envs List of available Environments
public	grp Process group
public static	isDebugger
public static	log Logging handler
public static	map Map with all allocated objects and their IDs
public static	procs List of running CTL.Processes

Constructor Summary

private	Env()

Method Summary

static Env	newEnv()
static Logger	newLogger(java.lang.String fname)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

map

`public static CTL.ObjectMap map`

Map with all allocated objects and their IDs

log

`public static CTL.Logger log`

Logging handler

debugger

`public static CTL.Types.PeerID debugger`

Remote debugger

AnyObjIdent

`public static CTL.AnyObjIdentMap AnyObjIdent`

Map of custom AnyObj identifier strings

procs

`public static java.util.LinkedList procs`

List of running CTL.Processes

envs

`private static java.util.LinkedList envs`

List of available Environments

debugID

`public static int debugID`

JVM's listening port for debuggers

(continued from last page)

clean

```
public static boolean clean
```

daemon

```
public static boolean daemon
```

isDebugger

```
public static boolean isDebugger
```

grp

```
public CTL.Group grp
```

Process group

comm

```
public CTL.Comm.Communicator comm
```

Communicator

Constructors

Env

```
private Env()
```

Methods

newEnv

```
public static Env newEnv()
```

newLogger

```
public static Logger newLogger(java.lang.String fname)
```

CTL
Class Globals

```
java.lang.Object
   ┗-CTL.Globals
```

public class **Globals**
extends java.lang.Object

Structure which holds some global CTL4j compile time settings.

Field Summary

public static final	doWait Wait for continuous messages in debug-mode Value: **true**
public static final	GetTrace Provide a kernel trace of invoked processes Value: **false**
public static final	HexDump Log hexdumps of messages Value: **false**
public static	LogLevel Default logfile verboseness level
public static	LogScope Whether or not to log the method printing a certain log message
public static	LogScopeDepth How far up the stack trace should be wrote to the logfile
public static	LogTimeStamp Whether or not to append a timestamp to logfile names
public static final	NullExcept Throw an exception if a writer got no data Value: **true**
public static final	verbose Whether or not to be verbose Value: **false**

Constructor Summary

public	Globals()

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

LogLevel

`public static int` **`LogLevel`**

Default logfile verboseness level

LogScope

`public static boolean` **`LogScope`**

Whether or not to log the method printing a certain log message

LogScopeDepth

`public static int` **`LogScopeDepth`**

How far up the stack trace should be wrote to the logfile

LogTimeStamp

`public static boolean` **`LogTimeStamp`**

Whether or not to append a timestamp to logfile names

NullExcept

`public static final boolean` **`NullExcept`**

Throw an exception if a writer got no data
Constant value: **`true`**

GetTrace

`public static final boolean` **`GetTrace`**

Provide a kernel trace of invoked processes
Constant value: **`false`**

doWait

`public static final boolean` **`doWait`**

Wait for continuous messages in debug-mode
Constant value: **`true`**

HexDump

`public static final boolean` **`HexDump`**

Log hexdumps of messages
Constant value: **`false`**

(continued from last page)

verbose

```
public static final boolean verbose
```

Whether or not to be verbose
Constant value: **false**

Constructors

Globals

```
public Globals()
```

CTL
Class Group

```
java.lang.Object
   |
   +-CTL.Group
```

All Implemented Interfaces:
java.lang.Runnable

---

public class **Group**
extends java.lang.Object
implements java.lang.Runnable

Process group (currently, only groups with 2 members are supported)

Field Summary

private	env Environment of this group member
protected	grp Array of GroupInfos for all members
private	members Number of hosts in this group
private	myID Logical ID of the process running on localhost
private	objID ObjectID
private	terminated Whether the group is terminated

Constructor Summary

public	Group(Env myEnv) Empty constructor
public	Group(java.lang.String host, int port, int myID, int members, int link, int myPort, Env myEnv)
public	Group(java.lang.String host, int port, int myID, int members, int link, Env myEnv)
public	Group(java.lang.String[] args)

Method Summary

GroupInfo	groupInfo(int id) Retrieve group information of a certain member

void	HS_recv() Receive a handshake
void	HS_send() Send a handshake
int	members() Retrieve number of group members
int	myID() Retrieve local Logical ID
GroupInfo	myInfo() Retrieve group information of the local member
void	printInfo() Print information about the group
void	readVersion(Communicator comm) Read version string
void	recv() Spawns a connection handler as long as the group is active
static void	recvException(java.lang.String msg) Receive an exception
void	recvTermination(PeerID pid, java.lang.String msg) Receive a termination request
void	run() Start the communication thread
boolean	running() Check if this group is active
void	terminate() Terminate the group
java.lang.String	toString() Retrieve a string representation of this object
void	updateGroup(int myID, int members) Update group information
void	writeVersion(Communicator comm) Write version string

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `java.lang.Runnable`

`run`

(continued from last page)

Fields

myID

```
private int myID
```

Logical ID of the process running on localhost

members

```
private int members
```

Number of hosts in this group

objID

```
private long objID
```

ObjectID

grp

```
protected CTL.Types.GroupInfo grp
```

Array of GroupInfos for all members

terminated

```
private boolean terminated
```

Whether the group is terminated

env

```
private CTL.Env env
```

Environment of this group member

Constructors

Group

```
public Group(Env myEnv)
```

Empty constructor

Group

```
public Group(java.lang.String host,
             int port,
             int myID,
             int members,
             int link,
             int myPort,
             Env myEnv)
```

Group

```
public Group(java.lang.String host,
             int port,
             int myID,
             int members,
             int link,
             Env myEnv)
```

Group

```
public Group(java.lang.String[] args)
```

Methods

recvTermination

```
public void recvTermination(PeerID pid,
         java.lang.String msg)
```

Receive a termination request

Parameters:

`pid` - PeerID of the terminating process
`msg` - Reason for termination

recvException

```
public static void recvException(java.lang.String msg)
```

Receive an exception

Parameters:

`msg` - Reason for the exception

updateGroup

```
private void updateGroup(int myID,
         int members)
```

Update group information

Parameters:

`myID` - Logical ID
`members` - Number of group members

printInfo

```
public void printInfo()
```

Print information about the group

(continued from last page)

readVersion

```
public void readVersion(Communicator comm)
  throws java.io.IOException,
         CTLException
```

Read version string

Parameters:

`comm` - Communicator

---

writeVersion

```
public void writeVersion(Communicator comm)
  throws java.io.IOException
```

Write version string

Parameters:

`comm` - Communicator

---

run

```
public void run()
```

Start the communication thread

---

recv

```
protected void recv()
```

Spawns a connection handler as long as the group is active

HS_recv

```
protected void HS_recv()
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.reflect.InvocationTargetException,
         java.lang.IllegalAccessException,
         CTLException
```

Receive a handshake

HS_send

```
protected void HS_send()
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         CTLException
```

Send a handshake

---

running

```
public boolean running()
```

(continued from last page)

Check if this group is active

Returns:
True if active, false otherwise

terminate

```
public void terminate()
```

Terminate the group

myID

```
public int myID()
```

Retrieve local Logical ID

Returns:
Logical ID

members

```
public int members()
```

Retrieve number of group members

Returns:
Number of members

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

groupInfo

```
public GroupInfo groupInfo(int id)
```

Retrieve group information of a certain member

myInfo

```
public GroupInfo myInfo()
```

Retrieve group information of the local member

CTL
Class Java

```
java.lang.Object
   |
   +-CTL.Java
```

public class **Java**
extends java.lang.Object

Handle reading and writing of Java standard library types. Types currently handled: * HashMap * HashSet * LinkedList * Stack * TypeTree (CTL specific type) * Vector

Constructor Summary

public	Java()

Method Summary

static java.util.HashMap	readHashMap(SerialIn in, TypeTree targs)
static java.util.HashSet	readHashSet(SerialIn in, TypeTree targs)
static java.util.LinkedList	readLinkedList(SerialIn in, TypeTree targs)
static java.util.Stack	readStack(SerialIn in, TypeTree targs)
static TypeTree	readTypeTree(SerialIn in)
static java.util.Vector	readVector(SerialIn in, TypeTree targs)
static void	writeHashMap(SerialOut out, java.util.HashMap map)
static void	writeHashSet(SerialOut out, java.util.HashSet set)
static void	writeLinkedList(SerialOut out, java.util.LinkedList list)
static void	writeStack(SerialOut out, java.util.Stack stack)
static void	writeTypeTree(SerialOut out, TypeTree tree)
static void	writeVector(SerialOut out, java.util.Vector v)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Java

```
public Java()
```

Methods

writeLinkedList

```
public static void writeLinkedList(SerialOut out,
        java.util.LinkedList list)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        CTLException
```

readLinkedList

```
public static java.util.LinkedList readLinkedList(SerialIn in,
        TypeTree targs)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException
```

writeTypeTree

```
public static void writeTypeTree(SerialOut out,
        TypeTree tree)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        CTLException
```

readTypeTree

```
public static TypeTree readTypeTree(SerialIn in)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException
```

(continued from last page)

writeHashMap

```
public static void writeHashMap(SerialOut out,
        java.util.HashMap map)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        CTLException
```

readHashMap

```
public static java.util.HashMap readHashMap(SerialIn in,
        TypeTree targs)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException
```

writeHashSet

```
public static void writeHashSet(SerialOut out,
        java.util.HashSet set)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        CTLException
```

readHashSet

```
public static java.util.HashSet readHashSet(SerialIn in,
        TypeTree targs)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException
```

writeVector

```
public static void writeVector(SerialOut out,
        java.util.Vector v)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        CTLException
```

(continued from last page)

readVector

```
public static java.util.Vector readVector(SerialIn in,
        TypeTree targs)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException
```

---

writeStack

```
public static void writeStack(SerialOut out,
        java.util.Stack stack)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        CTLException
```

---

readStack

```
public static java.util.Stack readStack(SerialIn in,
        TypeTree targs)
  throws java.io.IOException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException
```

CTL
Class Logger

```
java.lang.Object
   |
   +-CTL.Logger
```

public class **Logger**
extends java.lang.Object

Filter-based logging class

Field Summary

public static final	ALL All information Value: **2147483647**
public static final	DBG Debugging information, level 0 Value: **5**
public static final	DBG1 Debugging information, level 1 Value: **6**
public static final	DBG2 Debugging information, level 2 Value: **7**
public static final	ERR Error Value: **2**
private	file The file to write to
public static final	INFO Information Value: **4**
private static	loglevel Filter level of this Logger (default: anything equally or more important than warning)
public static final	WARN Warning Value: **3**

Constructor Summary

private	Logger(java.lang.String fname) Generate a new Logger with default filter

public	Logger(java.lang.String fname, int loglevel) Generate a new Logger with user-defined filter treshold

Method Summary

void	close() Close the underlying file
static java.lang.String	gettimeofday(boolean foo) Determine current time
static void	main(java.lang.String[] args)
void	msg(int lvl, java.lang.String msg) Write a message to the logfile
void	msg(java.lang.String msg) Write a message to the logfile

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

ERR

`public static final int` **`ERR`**

Error
Constant value: **2**

WARN

`public static final int` **`WARN`**

Warning
Constant value: **3**

INFO

`public static final int` **`INFO`**

Information
Constant value: **4**

DBG

`public static final int` **`DBG`**

Debugging information, level 0
Constant value: **5**

(continued from last page)

DBG1

```
public static final int DBG1
```

Debugging information, level 1
Constant value: **6**

DBG2

```
public static final int DBG2
```

Debugging information, level 2
Constant value: **7**

ALL

```
public static final int ALL
```

All information
Constant value: **2147483647**

file

```
private java.io.FileWriter file
```

The file to write to

loglevel

```
private static int loglevel
```

Filter level of this Logger (default: anything equally or more important than warning)

Constructors

Logger

```
private Logger(java.lang.String fname)
```

Generate a new Logger with default filter

Parameters:
`fname` - Logfile

Logger

```
public Logger(java.lang.String fname,
              int loglevel)
```

Generate a new Logger with user-defined filter treshold

Parameters:
`fname` - Logfile
`loglevel` - Filter treshold

Methods

(continued from last page)

close

```
public void close()
```

Close the underlying file

---

msg

```
public void msg(int lvl,
         java.lang.String msg)
```

Write a message to the logfile

Parameters:

`lvl` - Importance of this message, if equally or more important than the filter treshold, it will be logged
`msg` - Log message

---

msg

```
public void msg(java.lang.String msg)
```

Write a message to the logfile

Parameters:

`msg` - Log message

---

gettimeofday

```
private static java.lang.String gettimeofday(boolean foo)
```

Determine current time

Returns:

Pretty-printed string containing the time of day

---

main

```
public static void main(java.lang.String[] args)
```

CTL
Class Measure

```
java.lang.Object
   |
   +-CTL.Measure
```

Direct Known Subclasses:
rPointer, Header, FID, Except

---

public abstract class **Measure**
extends java.lang.Object

Derive from this class for easier serialized size calculation

---

Constructor Summary

public	Measure()

Method Summary

int	size() Size of this object if it would be serialized

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

---

Constructors

Measure

```
public Measure()
```

Methods

size

```
public final int size()
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Size of this object if it would be serialized

Returns:
Size

CTL
Class MessageQueue

```
java.lang.Object
   |
   +-CTL.MessageQueue
```

public class **MessageQueue**
extends java.lang.Object

Queue for CTL messages

Field Summary

private	map0 ID-Header map
private	map1 ID-Message map

Constructor Summary

public	MessageQueue() Generate a new queue

Method Summary

boolean	contains(int tag) Check if a message with a specific ID is enqueued
void	enqueue(Header head, byte[] _msg) Enqueue a message
void	enqueue(int tag, Header head, byte[] msg) Enqueue a message with an user-defined ID
Header	header(int tag) Retrieve the header of a message
static void	main(java.lang.String[] args) Just a small testcase
byte[]	payload(int tag) Retrieve a message
void	readFrom(OIStream in) Read a message from the stream and enqueue it

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

(continued from last page)

Fields

map0

```
private java.util.HashMap map0
```

ID-Header map

map1

```
private java.util.HashMap map1
```

ID-Message map

Constructors

MessageQueue

```
public MessageQueue()
```

Generate a new queue

Methods

readFrom

```
public void readFrom(OIStream in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read a message from the stream and enqueue it

Parameters:

`in` - Input stream

enqueue

```
public void enqueue(Header head,
         byte[] _msg)
```

Enqueue a message

Parameters:

`head` - Header

`_msg` - Message

enqueue

```
public void enqueue(int tag,
         Header head,
         byte[] msg)
```

Enqueue a message with an user-defined ID

Parameters:

`tag` - ID

(continued from last page)

`head` - Header
`msg` - Message

payload

```
public byte[] payload(int tag)
```

Retrieve a message

Parameters:
`tag` - ID

Returns:
Message or null if not found

header

```
public Header header(int tag)
```

Retrieve the header of a message

Parameters:
`tag` - ID

Returns:
Message header or null if not found

contains

```
public boolean contains(int tag)
```

Check if a message with a specific ID is enqueued

Parameters:
`tag` - ID

Returns:
True if present, false otherwise

main

```
public static void main(java.lang.String[] args)
```

Just a small testcase

CTL
Class ObjectMap

```
java.lang.Object
   |
   +-CTL.ObjectMap
```

public class **ObjectMap**
extends java.lang.Object

Map of objects

Field Summary

private	counter Number of objects created by this map
private	list Underlying LinkedList of ObjectMapEntries

Constructor Summary

public	ObjectMap() Generate a new map

Method Summary

int	createObj(java.lang.reflect.Constructor c, java.lang.Object[] args) Create an object and insert it into the map
java.lang.String	dump() Dump the map's contents to screen
int	getCounter() Retrieve the number of generated objects
java.lang.Object	getObj(int hash) Retrieve an object by ID
int	regObj(java.lang.Object obj) Register a previously constructed object
int	regObj(java.lang.Object obj, int ID) Register a previously constructed object

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

(continued from last page)

counter

```
private int counter
```

Number of objects created by this map

---

list

```
private java.util.LinkedList list
```

Underlying LinkedList of ObjectMapEntries

Constructors

ObjectMap

```
public ObjectMap()
```

Generate a new map

Methods

getCounter

```
public int getCounter()
```

Retrieve the number of generated objects

Returns:
Number of objects

---

createObj

```
public int createObj(java.lang.reflect.Constructor c,
         java.lang.Object[] args)
  throws java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Create an object and insert it into the map

Parameters:
`c` - Constructor to call
`args` - Arguments to the constructor

Returns:
ID of the created object

---

regObj

```
public int regObj(java.lang.Object obj)
```

Register a previously constructed object

Parameters:
`obj` - Object

Returns:

(continued from last page)

ID of the enqueued object

regObj

```
public int regObj(java.lang.Object obj,
          int ID)
```

Register a previously constructed object

Parameters:

`obj` - Object
`ID` - ID to register the object with

Returns:

The specified ID

getObj

```
public java.lang.Object getObj(int hash)
```

Retrieve an object by ID

Parameters:

`hash` - ID

Returns:

The object or null if none was registered for the specified ID

dump

```
public java.lang.String dump()
```

Dump the map's contents to screen

CTL
Class ObjectMapEntry

```
java.lang.Object
   |
   +-CTL.ObjectMapEntry
```

public class **ObjectMapEntry**
extends java.lang.Object

Entry in an ObjectMap

Field Summary

private	hashCode Hash code of the object
private	object The object itself

Constructor Summary

public	ObjectMapEntry(int hash, java.lang.Object obj) Generate a new ObjectMapEntry

Method Summary

int	getHash() Retrieve the hash code of this object
java.lang.Object	getObj() Retrieve the object itself
java.lang.String	toString() Retrieve a string representation of this object

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

hashCode

`private int` **`hashCode`**

Hash code of the object

object

`private java.lang.Object` **`object`**

(continued from last page)

The object itself

Constructors

ObjectMapEntry

```
public ObjectMapEntry(int hash,
                      java.lang.Object obj)
```

Generate a new ObjectMapEntry

Parameters:

`hash` - Hash code
`obj` - Object

Methods

getHash

```
public int getHash()
```

Retrieve the hash code of this object

Returns:

Hash code

---

getObj

```
public java.lang.Object getObj()
```

Retrieve the object itself

Returns:

Object

---

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:

String

CTL
Class Password

```
java.lang.Object
   |
   +-CTL.Password
```

public class **Password**
extends java.lang.Object

Taken from http://java.sun.com/developer/technicalArticles/Security/pwordmask/ Note: Insecure, because Strings are immutable

Nested Class Summary

class	Password.MaskingThread Password.MaskingThread

Constructor Summary

public	Password()

Method Summary

static char[]	getPassword(java.io.InputStream in, java.lang.String prompt)
static java.lang.String	prompt()

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Password

`public` **`Password`**`()`

Methods

prompt

`public static java.lang.String` **`prompt`**`()`

(continued from last page)

getPassword

```
public final static char[] getPassword(java.io.InputStream in,
         java.lang.String prompt)
  throws java.io.IOException
```

CTL
Class Password.MaskingThread

```
java.lang.Object
   |
   +-java.lang.Thread
      |
      +-CTL.Password.MaskingThread
```

All Implemented Interfaces:
java.lang.Runnable

---

private static class **Password.MaskingThread**
extends java.lang.Thread

Field Summary

private	echochar
private volatile	stop

Fields inherited from class `java.lang.Thread`

`blocker`, `blockerLock`, `contextClassLoader`, `daemon`, `defaultUncaughtExceptionHandler`, `eetop`, `EMPTY_STACK_TRACE`, `group`, `inheritableThreadLocals`, `inheritedAccessControlContext`, `MAX_PRIORITY`, `MIN_PRIORITY`, `name`, `NORM_PRIORITY`, `priority`, `single_step`, `stackSize`, `started`, `stillborn`, `SUBCLASS_IMPLEMENTATION_PERMISSION`, `subclassAudits`, `target`, `threadInitNumber`, `threadLocals`, `threadQ`, `threadSeqNumber`, `threadStatus`, `tid`, `uncaughtExceptionHandler`

Constructor Summary

public	Password.MaskingThread(java.lang.String prompt)

Method Summary

void	run()
void	stopMasking()

Methods inherited from class `java.lang.Thread`

`activeCount`, `auditSubclass`, `blockedOn`, `checkAccess`, `countStackFrames`, `currentThread`, `destroy`, `dispatchUncaughtException`, `dumpStack`, `dumpThreads`, `enumerate`, `exit`, `getAllStackTraces`, `getContextClassLoader`, `getDefaultUncaughtExceptionHandler`, `getId`, `getName`, `getPriority`, `getStackTrace`, `getState`, `getThreadGroup`, `getThreads`, `getUncaughtExceptionHandler`, `holdsLock`, `init`, `interrupt`, `interrupt0`, `interrupted`, `isAlive`, `isCCLOverridden`, `isDaemon`, `isInterrupted`, `isInterrupted`, `join`, `join`, `join`, `nextThreadID`, `nextThreadNum`, `registerNatives`, `resume`, `resume0`, `run`, `setContextClassLoader`, `setDaemon`, `setDefaultUncaughtExceptionHandler`, `setName`, `setPriority`, `setPriority0`, `setUncaughtExceptionHandler`, `sleep`, `sleep`, `start`, `start0`, `stop`, `stop`, `stop0`, `suspend`, `suspend0`, `toString`, `yield`

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.lang.Runnable
run

Fields

stop

```
private volatile boolean stop
```

echochar

```
private char echochar
```

Constructors

Password.MaskingThread

```
public Password.MaskingThread(java.lang.String prompt)
```

Methods

run

```
public void run()
```

stopMasking

```
public void stopMasking()
```

CTL
Class Process

```
java.lang.Object
   ┗-CTL.Process
```

public class **Process**
extends java.lang.Object

Communication process

Field Summary

private	daemon
private	env
protected	loc Location of the remote communication partner
private	needsCleaner
private	remote_id
private	t
private	thr

Constructor Summary

public	Process(Location loc) Generate a new Process
public	Process(Location loc, java.lang.String[] args) Generate a new Process

Method Summary

Env	getEnv() Retrieve the local environment of this process
int	ID()
boolean	isAlive() Check if the process is actually running
Location	loc() Retrieve the location of this process.

void	startService(Location loc, Communicator comm) Start the remote communication service
void	stopService() Stop the remote communication service
void	stopService(int you, boolean dmn)
java.lang.String	toString() Retrieve a string representation of this object

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

loc

`protected CTL.Types.Location loc`

Location of the remote communication partner

env

`private CTL.Env env`

thr

`private java.lang.Thread thr`

t

`private CTL.Timer t`

daemon

`private boolean daemon`

remote_id

`private int remote_id`

(continued from last page)

needsCleaner

```
private boolean needsCleaner
```

Constructors

Process

```
public Process(Location loc)
```

Generate a new Process

Parameters:
`loc` - Location

Process

```
public Process(Location loc,
               java.lang.String[] args)
```

Generate a new Process

Parameters:
`loc` - Location
`args` - Commandline arguments

Methods

ID

```
public int ID()
```

---

isAlive

```
public boolean isAlive()
```

Check if the process is actually running

Returns:
True if running, false otherwise.

---

startService

```
private void startService(Location loc,
         Communicator comm)
```

Start the remote communication service

Parameters:
`loc` - Location

---

stopService

```
public void stopService()
```

(continued from last page)

Stop the remote communication service

stopService

```
public void stopService(int you,
         boolean dmn)
```

loc

```
public Location loc()
```

Retrieve the location of this process.

Returns:
Location

getEnv

```
public Env getEnv()
```

Retrieve the local environment of this process

Returns:
Environment

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

CTL
Class Remote

```
java.lang.Object
   ┗-CTL.Remote
```

public class **Remote**
extends java.lang.Object

Static methods for remote communication based on the CTL protocol

Field Summary

public static final	C Constants for different languages Value: **1**
public static final	CPP Value: **2**
public static final	CTRL Control message Value: **4**
public static final	DAT Send data directly Value: **1**
public static final	DBG Debug Info Value: **21**
public static final	EOC End of communication Value: **-1**
public static final	ERR Error Value: **5**
public static final	FORTRAN Value: **3**
public static final	JAVA Value: **4**
public static final	magic Magic string to check for correct byte order and filtering when using the pipe transport mechanism Value: **1F3E:A28E:2CF0:9378:AA01:0744:5D31:710A**

public static final	magic2 Value: **496110927**
public static final	OPER Operation Value: **2**
public static final	RMI Remote method invocation Value: **3**
public static final	SSH SSH connect Value: **20**
private static	tag Start tag for user defined message types
public static final	UNDEF Undefined Value: **255**

Constructor Summary

public	Remote()

Method Summary

static void	__answer(Communicator comm, Header head, long objID, Except ex, IStream2 args, boolean keep_args) Remote answer function
static void	__call(Communicator comm, Header head, long objID, FID fid, IStream2 args, rPointer objID2, boolean keep_args) Remote call function
static void	answer(Communicator comm, Header head, long objID, Except ex, IStream2 args) Answer wrapper for logging, etc.
static void	call(Communicator comm, Header head, long objID, FID fid, IStream2 args, rPointer objID2) Call wrapper for logging, etc.
static java.lang.String	parseMType(int mtype) Convert a numerical message type to string
static java.lang.Object	readDAT(Communicator comm, java.lang.String type) Read a DAT message
static GroupInfo	readHS(Communicator comm) Read handshake
static void	writeDAT(Communicator comm, java.lang.Object data) Write a DAT message

static void	writeDAT(Communicator comm, java.lang.Object data, IPaddr host, int port)
static void	writeDBG(Communicator comm, byte[] data) Write a message to the debug socket of a communicator.
static void	writeHS(GroupInfo grp, Communicator comm) Write handshake

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

magic

`public static final java.lang.String` **`magic`**

Magic string to check for correct byte order and filtering when using the pipe transport mechanism
Constant value: **`1F3E:A28E:2CF0:9378:AA01:0744:5D31:710A`**

magic2

`public static final int` **`magic2`**

Constant value: **`496110927`**

EOC

`public static final int` **`EOC`**

End of communication
Constant value: **`-1`**

DAT

`public static final int` **`DAT`**

Send data directly
Constant value: **`1`**

OPER

`public static final int` **`OPER`**

Operation
Constant value: **`2`**

RMI

`public static final int` **`RMI`**

Remote method invocation

(continued from last page)

Constant value: **3**

CTRL

```
public static final int CTRL
```

Control message
Constant value: **4**

ERR

```
public static final int ERR
```

Error
Constant value: **5**

SSH

```
public static final int SSH
```

SSH connect
Constant value: **20**

DBG

```
public static final int DBG
```

Debug Info
Constant value: **21**

UNDEF

```
public static final int UNDEF
```

Undefined
Constant value: **255**

C

```
public static final int C
```

Constants for different languages
Constant value: **1**

CPP

```
public static final int CPP
```

Constant value: **2**

FORTRAN

```
public static final int FORTRAN
```

Constant value: **3**

(continued from last page)

JAVA

```
public static final int JAVA
```

Constant value: **4**

---

tag

```
private static int tag
```

Start tag for user defined message types

Constructors

Remote

```
public Remote()
```

Methods

parseMType

```
public static java.lang.String parseMType(int mtype)
```

Convert a numerical message type to string

Parameters:
`mtype` - Message type

Returns:
String

---

readDAT

```
public static java.lang.Object readDAT(Communicator comm,
                                       java.lang.String type)
                                throws java.io.IOException,
                                       java.lang.IllegalAccessException,
                                       java.lang.reflect.InvocationTargetException,
                                       java.lang.ClassNotFoundException,
                                       java.lang.InstantiationException,
                                       CTLException
```

Read a DAT message

Parameters:
`comm` - Communicator to use
`type` - Type to read

Returns:
Read value

(continued from last page)

writeDAT

```
public static void writeDAT(Communicator comm,
         java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         CTLException
```

Write a DAT message

Parameters:

`comm` - Communicator to use

`data` - Value to send

---

writeDAT

```
public static void writeDAT(Communicator comm,
         java.lang.Object data,
         IPaddr host,
         int port)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         CTLException
```

---

writeHS

```
public static void writeHS(GroupInfo grp,
         Communicator comm)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         CTLException
```

Write handshake

Parameters:

`grp` - Group information

`comm` - Communicator to use

---

writeDBG

```
public static void writeDBG(Communicator comm,
         byte[] data)
```

Write a message to the debug socket of a communicator. This only works for TCPCommunicators, because only those support debug-mode.

Parameters:

`comm` - Some TCPCommunicator

`data` - The data to write

(continued from last page)

readHS

```
public static GroupInfo readHS(Communicator comm)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         CTLException
```

Read handshake

Parameters:

`comm` - Communicator to use

Returns:

Group information

__call

```
private static void __call(Communicator comm,
         Header head,
         long objID,
         FID fid,
         IStream2 args,
         rPointer objID2,
         boolean keep_args)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Remote call function

Parameters:

`comm` - Communicator to use
`head` - Header
`objID` - ObjectID
`fid` - FunctionID
`args` - IStream2 which stores the arguments
`keep_args` - Whether or not to keep the args in the IStream2 for successive function calls

---

call

```
public static void call(Communicator comm,
         Header head,
         long objID,
         FID fid,
         IStream2 args,
         rPointer objID2)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Call wrapper for logging, etc.

(continued from last page)

answer

```
public static void answer(Communicator comm,
         Header head,
         long objID,
         Except ex,
         IStream2 args)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Answer wrapper for logging, etc.

__answer

```
private static void __answer(Communicator comm,
         Header head,
         long objID,
         Except ex,
         IStream2 args,
         boolean keep_args)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Remote answer function

Parameters:

`comm` - Communicator to use
`head` - Header
`objID` - ObjectID
`ex` - Exception
`args` - IStream2 which stores the arguments
`keep_args` - Whether or not to keep the arguments in the IStream2 for successive calls

CTL
Class RI

```
java.lang.Object
   |
   +-CTL.RI
```

Direct Known Subclasses:
SendCI, PiSimpleCI, MatheCI, LinalgCI, HelloCI, GroupCI, EvilArrayTestCI, EvCalcCI, CryptCI, ChainCI, ChainCCI, CallByReferenceCI, CTestCI, CTL_Locator, ApplicationCI, AnythingCI, CTL_Registry, CTL_Locator, AddCI

---

public abstract class **RI**
extends java.lang.Object

Abstract base class for all remote interfaces

Field Summary

protected	home PeerID
protected	objID ObjectID
protected static	proc Process information

Constructor Summary

public	RI()

Method Summary

java.lang.String	getBase() Retrieve the implementation class of this remote interface
long	objID() Retrieve the objID of this object
PeerID	peerID() Retrieve the PeerID of this object
static Process	proc() Retrieve the communication process of this object
void	setObjID(long ID) Set an objID for this object
void	setPeerID(PeerID ID) Set a PeerID for this object
static void	use(Process prc) Set the communication process for this object

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

proc

`protected static CTL.Process proc`

Process information

objID

`protected long objID`

ObjectID

home

`protected CTL.Types.PeerID home`

PeerID

Constructors

RI

`public RI()`

Methods

peerID

`public PeerID peerID()`

Retrieve the PeerID of this object

Returns:
PeerID

setPeerID

`public void setPeerID(PeerID ID)`

Set a PeerID for this object

Parameters:
`ID` - PeerID

(continued from last page)

objID

```
public long objID()
```

Retrieve the objID of this object

Returns:
ObjectID

---

setObjID

```
public void setObjID(long ID)
```

Set an objID for this object

Parameters:
`ID` - ObjectID

---

use

```
public static void use(Process prc)
```

Set the communication process for this object

Parameters:
`prc` - Process

---

proc

```
protected static Process proc()
```

Retrieve the communication process of this object

Returns:
Process

---

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

Returns:
Implementation class as string

CTL
Class rResult

```
java.lang.Object
   |
   +-CTL.rResult
```

public class **rResult**
extends java.lang.Object

Result of a remote method call

Field Summary

private	recv Received status
private	type Return types
private	value Return values

Constructor Summary

public	rResult(TypeTree type) Generate a new rResult storing one result
public	rResult(TypeTree[] type) Generate a new rResult storing multiple results

Method Summary

boolean	booleanValue(int i) Return a boolean value
void	create(TypeTree[] type) Underlying create() function for the constructors
double	doubleValue(int i) Return a double value
float	floatValue(int i) Return a float value
int	intValue(int i) Return an integer value
int	length() Synonym for results()
long	longValue(int i) Return a long value

java.lang.Object	ObjectValue(int i) Return an Object value
void	receive(java.lang.Object val, int i) Function called by the remote side to pass the data
boolean	received() Check whether all results were received
boolean	received(int i) Check whether a result was received
void	recv(OIStream in, int i) Receive data for a specific return value
int	results() Retrieve the number of results stored
short	shortValue(int i) Return a short value
java.lang.String	StringValue(int i) Return a String value
java.lang.String	toString()
TypeTree	type(int i) Retrieve the type of a return value
java.lang.Object	value() Return the last value (usually the actual return value of a method)

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

recv

```
private boolean recv
```

Received status

type

```
private ReflWrap.TypeTree type
```

Return types

value

```
private java.lang.Object value
```

Return values

Constructors

rResult

```
public rResult(TypeTree type)
```

Generate a new rResult storing one result

Parameters:
`type` - Return type

---

rResult

```
public rResult(TypeTree[] type)
```

Generate a new rResult storing multiple results

Parameters:
`type` - Return types

Methods

toString

```
public java.lang.String toString()
```

---

create

```
private void create(TypeTree[] type)
```

Underlying create() function for the constructors

Parameters:
`type` - List of types

---

results

```
public int results()
```

Retrieve the number of results stored

Returns:
Number of results

---

length

```
public int length()
```

Synonym for results()

Returns:
Number of results

(continued from last page)

received

```
public boolean received(int i)
```

Check whether a result was received

Parameters:
`i` - Index number

Returns:
True if a result was received, false otherwise

---

received

```
public boolean received()
```

Check whether all results were received

Returns:
True if all results were received, false otherwise

---

type

```
public TypeTree type(int i)
```

Retrieve the type of a return value

Parameters:
`i` - Index number

Returns:
Type of this return value

---

recv

```
public void recv(OIStream in,
         int i)
  throws java.lang.IllegalAccessException,
         java.io.IOException,
         java.lang.reflect.InvocationTargetException,
         java.lang.NoSuchMethodException,
         java.lang.ClassNotFoundException
```

Receive data for a specific return value

Parameters:
`in` - Input stream
`i` - Index number

---

receive

```
protected void receive(java.lang.Object val,
         int i)
```

Function called by the remote side to pass the data

Parameters:
`val` - Return value
`i` - Index number

intValue

```
public int intValue(int i)
```

Return an integer value

Parameters:
`i` - Index number

Returns:
Value

doubleValue

```
public double doubleValue(int i)
```

Return a double value

Parameters:
`i` - Index number

Returns:
Value

floatValue

```
public float floatValue(int i)
```

Return a float value

Parameters:
`i` - Index number

Returns:
Value

StringValue

```
public java.lang.String StringValue(int i)
```

Return a String value

Parameters:
`i` - Index number

Returns:
Value

ObjectValue

```
public java.lang.Object ObjectValue(int i)
```

Return an Object value

Parameters:
`i` - Index number

(continued from last page)

Returns:
Value

longValue

```
public long longValue(int i)
```

Return a long value

Parameters:
`i` - Index number

Returns:
Value

shortValue

```
public short shortValue(int i)
```

Return a short value

Parameters:
`i` - Index number

Returns:
Value

booleanValue

```
public boolean booleanValue(int i)
```

Return a boolean value

Parameters:
`i` - Index value

Returns:
Value

value

```
public java.lang.Object value()
```

Return the last value (usually the actual return value of a method)

Returns:
Value (as Object)

CTL
Class RUtil

```
java.lang.Object
   |
   +-CTL.RUtil
```

public class **RUtil**
extends java.lang.Object

Static utility functions which did not fit anywhere else

Field Summary

private static	halt Keeps track of recursive calls to avoid infinite loops
public static	serialrd Method objects for serialRead() and serialWrite()
public static	serialrd2 Method objects for serialRead() and serialWrite()
public static	serialwr Method objects for serialRead() and serialWrite()

Constructor Summary

public	RUtil()

Method Summary

static java.lang.String	__stackTrace(java.lang.StackTraceElement[] trace) Stacktrace printer helper function
static java.lang.String	__stackTrace(java.lang.StackTraceElement[] trace, int len) Stacktrace printer helper function
static java.lang.Class	classToRI(java.lang.Class klas) Find the remote interface class for an implementation class
static java.lang.String	converter(java.lang.String type, java.lang.String convert_me) Retrieve a conversion code snippet for a certain type
static void	except(java.lang.Exception e) Properly decode and display an exception
static java.lang.String	getBase(java.lang.String name) Get the implementation class of some CI/RI
static char	getCID(java.lang.reflect.Constructor construct) Get the FID for a certain constructor

static char	getFID(java.lang.reflect.Method method) Get the FID for a certain method
static java.lang.reflect.Method	getReader(java.lang.String type) Returns a reader function for the specified type
static java.lang.reflect.Method	getReceiver(java.lang.String type) Returns a receiver function for the specified type
static java.lang.reflect.Method	getWriter(java.lang.String type) Returns a writer function for the specified type
static void	main(java.lang.String[] args)
static int	objSize(java.lang.Object obj) Calculate the serialized size of an object
static int	optInt(gnu.getopt.Getopt g) Extract an integer from a CLI option
static PeerID	optPeerID(gnu.getopt.Getopt g) Extract a PeerID from a CLI option
static PeerID	optPeerID(java.lang.String arg) Extract a PeerID from a CLI option
static java.lang.String	optString(gnu.getopt.Getopt g) Extract a String from a CLI option
static java.lang.String	reader2str(java.lang.String reader) Convert a reader function to string
static java.lang.String	stackTrace() Pretty print stacktrace of the current thread
static java.lang.String	stackTrace(java.lang.Exception e) Print the backtrace of an exception
static int	tryInt(java.lang.String str) Fault-tolerant string to integer conversion

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

serialrd

`public static java.lang.reflect.Method` **`serialrd`**

Method objects for serialRead() and serialWrite()

(continued from last page)

serialrd2

```
public static java.lang.reflect.Method serialrd2
```

Method objects for serialRead() and serialWrite()

---

serialwr

```
public static java.lang.reflect.Method serialwr
```

Method objects for serialRead() and serialWrite()

---

halt

```
private static int halt
```

Keeps track of recursive calls to avoid infinite loops

Constructors

RUtil

```
public RUtil()
```

Methods

stackTrace

```
public static java.lang.String stackTrace(java.lang.Exception e)
```

Print the backtrace of an exception

Parameters:
`e` - Exception

Returns:
String

__stackTrace

```
private static java.lang.String __stackTrace(java.lang.StackTraceElement[] trace)
```

Stacktrace printer helper function

Parameters:
`trace` - Stacktrace element

Returns:
String

__stackTrace

```
private static java.lang.String __stackTrace(java.lang.StackTraceElement[] trace,
         int len)
```

Stacktrace printer helper function

(continued from last page)

Parameters:
`trace` - Stacktrace element
`len` - Length

Returns:
String

stackTrace

```
public static java.lang.String stackTrace()
```

Pretty print stacktrace of the current thread

Returns:
String

except

```
public static void except(java.lang.Exception e)
```

Properly decode and display an exception

Parameters:
`e` - Exception

getFID

```
public static char getFID(java.lang.reflect.Method method)
```

Get the FID for a certain method

Parameters:
`method` - Method

Returns:
FunctionID

getCID

```
public static char getCID(java.lang.reflect.Constructor construct)
```

Get the FID for a certain constructor

Parameters:
`construct` - Constructor

Returns:
FunctionID

getReader

```
public static java.lang.reflect.Method getReader(java.lang.String type)
```

Returns a reader function for the specified type

Parameters:
`type` - Type to read

(continued from last page)

Returns:
Method which can read the type

getWriter

```
public static java.lang.reflect.Method getWriter(java.lang.String type)
```

Returns a writer function for the specified type

Parameters:
`type` - Type to write

Returns:
Method which can write the type

getReceiver

```
public static java.lang.reflect.Method getReceiver(java.lang.String type)
```

Returns a receiver function for the specified type

Parameters:
`type` - Type to receive

Returns:
Method which can receive the type

reader2str

```
public static java.lang.String reader2str(java.lang.String reader)
```

Convert a reader function to string

Parameters:
`reader` - Reader function

Returns:
String

classToRI

```
public static java.lang.Class classToRI(java.lang.Class klas)
  throws java.lang.ClassNotFoundException
```

Find the remote interface class for an implementation class

Parameters:
`klas` - Implementation class

Returns:
RI class

(continued from last page)

objSize

```
public static int objSize(java.lang.Object obj)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Calculate the serialized size of an object

Parameters:
`obj` - Object

Returns:
Size

---

converter

```
public static java.lang.String converter(java.lang.String type,
          java.lang.String convert_me)
```

Retrieve a conversion code snippet for a certain type

Parameters:
`type` - Type
`convert_me` - Name of the variable to convert

Returns:
Code

---

tryInt

```
public static int tryInt(java.lang.String str)
```

Fault-tolerant string to integer conversion

Parameters:
`str` - String to convert

Returns:
Integer

---

optPeerID

```
public static PeerID optPeerID(java.lang.String arg)
```

Extract a PeerID from a CLI option

Parameters:
`arg` - String

Returns:
PeerID

---

optPeerID

```
public static PeerID optPeerID(gnu.getopt.Getopt g)
```

Extract a PeerID from a CLI option

(continued from last page)

Parameters:
g - Getopt parser object

Returns:
PeerID

---

optInt

```
public static int optInt(gnu.getopt.Getopt g)
```

Extract an integer from a CLI option

Parameters:
g - Getopt parser object

Returns:
Integer

---

optString

```
public static java.lang.String optString(gnu.getopt.Getopt g)
```

Extract a String from a CLI option

Parameters:
g - Getopt parser object

Returns:
String

---

getBase

```
public static java.lang.String getBase(java.lang.String name)
```

Get the implementation class of some CI/RI

Parameters:
name - CI/RI name

Returns:
Name of the implementation class or null if it does not have any / is not an RI

---

main

```
public static void main(java.lang.String[] args)
```

CTL
Class Timer

```
java.lang.Object
   |
   +-CTL.Timer
```

public class **Timer**
extends java.lang.Object

Timer

Field Summary

private	time Some time value

Constructor Summary

public	Timer() Constructor

Method Summary

static long	getTime() Helper method for retrieving the current time
static void	main(java.lang.String[] args) Test function
static void	sleep(long millisecs) Sleep for some time
long	stop() Stop the timer and reset the internal time
long	stop2() Stop the timer and do not reset the interal timer
static java.lang.String	timestr(long time) Convert a time value to a string
java.lang.String	toString() Conversion to string

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

(continued from last page)

time

```
private long time
```

Some time value

Constructors

Timer

```
public Timer()
```

Constructor

Methods

getTime

```
private static long getTime()
```

Helper method for retrieving the current time

Returns:
Current time in milliseconds

---

stop

```
public long stop()
```

Stop the timer and reset the internal time

Returns:
Time passed

---

stop2

```
public long stop2()
```

Stop the timer and do not reset the interal timer

Returns:
Time passed

---

timestr

```
public static java.lang.String timestr(long time)
```

Convert a time value to a string

Parameters:
`time` - Time

Returns:
String

(continued from last page)

toString

```
public java.lang.String toString()
```

Conversion to string

Returns:
String

sleep

```
public static void sleep(long millisecs)
```

Sleep for some time

Parameters:
`millisecs` - Milliseconds to sleep

main

```
public static void main(java.lang.String[] args)
```

Test function

CTL
Class ToolBase

```
java.lang.Object
   |
   +-CTL.ToolBase
```

Direct Known Subclasses:
ToolBase2, CTL_LocatorCTLI, Server, Admin

---

public abstract class **ToolBase**
extends java.lang.Object

Base class for CTL tools

Nested Class Summary

class	ToolBase.Type ToolBase.Type

Constructor Summary

public	ToolBase()

Method Summary

static java.util.LinkedList	findAllCIs()
static java.util.LinkedList	findCIs() Find all CIs in the javaSys/ directory
static java.util.LinkedList	findCIs(java.lang.String dirname) Find all CIs in some directory
static java.util.LinkedList	findClasses(java.lang.String dirname) Find all classes in some directory
static java.util.LinkedList	findImpls() Find all classes in the Impl/ directory
static void	loadClasses(java.util.LinkedList files)
java.lang.String	whereAmI() Determines where a loaded class actually lives in the filesystem
java.lang.String	whereAmI(ToolBase.Type type) Determines where a loaded class actually lives in the filesystem

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

ToolBase

```
public ToolBase()
```

Methods

whereAmI

```
protected java.lang.String whereAmI()
```

Determines where a loaded class actually lives in the filesystem

Returns:
Resource location

---

whereAmI

```
protected java.lang.String whereAmI(ToolBase.Type type)
```

Determines where a loaded class actually lives in the filesystem

Parameters:
`type` - Filter for a specific location type

Returns:
Resource location

---

findCIs

```
protected static java.util.LinkedList findCIs()
```

Find all CIs in the javaSys/ directory

Returns:
Linked list of CI names

---

findCIs

```
protected static java.util.LinkedList findCIs(java.lang.String dirname)
```

Find all CIs in some directory

Parameters:
`dirname` - Name of the directory to search in

Returns:
Linked list of CI names

---

findImpls

```
protected static java.util.LinkedList findImpls()
```

(continued from last page)

Find all classes in the Impl/ directory

Returns:
Linked list of class names

findClasses

```
protected static java.util.LinkedList findClasses(java.lang.String dirname)
```

Find all classes in some directory

Parameters:
`dirname` - Name of the directory to search in

Returns:
Linked list of class names

loadClasses

```
protected static void loadClasses(java.util.LinkedList files)
```

findAllCIs

```
public static java.util.LinkedList findAllCIs()
```

CTL
Class ToolBase.Type

```
java.lang.Object
   |-java.lang.Enum
      |-CTL.ToolBase.Type
```

All Implemented Interfaces:
java.io.Serializable, java.lang.Comparable

---

protected static final class **ToolBase.Type**
extends java.lang.Enum

Field Summary

public static final	FILE
public static final	JAR
public static final	UNDEF

Fields inherited from class java.lang.Enum

name, ordinal

Constructor Summary

private	ToolBase.Type()

Method Summary

static ToolBase.Type	valueOf(java.lang.String name)
static ToolBase.Type[]	values()

Methods inherited from class java.lang.Enum

clone, compareTo, equals, getDeclaringClass, hashCode, name, ordinal, toString, valueOf

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.lang.Comparable

compareTo

Fields

UNDEF

```
public static final CTL.ToolBase.Type UNDEF
```

FILE

```
public static final CTL.ToolBase.Type FILE
```

JAR

```
public static final CTL.ToolBase.Type JAR
```

Constructors

ToolBase.Type

```
private ToolBase.Type()
```

Methods

values

```
public final static ToolBase.Type[] values()
```

valueOf

```
public static ToolBase.Type valueOf(java.lang.String name)
```

CTL
Class Vault

```
java.lang.Object
   |
   +-CTL.Vault
```

public class **Vault**
extends java.lang.Object

Persistence for CTL objects

Constructor Summary

public	Vault()

Method Summary

static java.lang.Object	read(java.io.File fname)
static java.lang.Object	read(java.io.InputStream in)
static void	write(java.lang.Object obj, TypeTree type, java.io.File fname)
static void	write(java.lang.Object obj, TypeTree type, java.io.OutputStream out)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Vault

```
public Vault()
```

Methods

read

```
public static java.lang.Object read(java.io.InputStream in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

(continued from last page)

read

```
public static java.lang.Object read(java.io.File fname)
  throws java.io.FileNotFoundException,
         java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

write

```
public static void write(java.lang.Object obj,
         TypeTree type,
         java.io.OutputStream out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

write

```
public static void write(java.lang.Object obj,
         TypeTree type,
         java.io.File fname)
  throws java.io.FileNotFoundException,
         java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Package
CTL.Annotate

CTL.Annotate
Interface any

public interface **any**
extends java.lang.annotation.Annotation

This Annotation marks variables which should be send as 'AnyObject', which means that they are send by writeObject() instead of serialWrite(). The callee does not have to know the exact type to read such a data structure, as the type is written to the stream.

Methods inherited from interface `java.lang.annotation.Annotation`
`annotationType, equals, hashCode, toString`

CTL.Annotate
Interface builtin

public interface **builtin**
extends java.lang.annotation.Annotation

This Annotation marks methods as builtin, which means that they will not send any kind of result back to the caller.

Methods inherited from interface `java.lang.annotation.Annotation`
`annotationType, equals, hashCode, toString`

CTL.Annotate
Interface cdont

public interface **cdont**
extends java.lang.annotation.Annotation

Constructors annotate by this will not be included in the RI.

Methods inherited from interface `java.lang.annotation.Annotation`
`annotationType, equals, hashCode, toString`

CTL.Annotate
Interface const_

public interface **const_**
extends java.lang.annotation.Annotation

Annotation which is equivalent to the C++ 'const' keyword

Methods inherited from interface `java.lang.annotation.Annotation`
`annotationType, equals, hashCode, toString`

CTL.Annotate
Interface dont

public interface **dont**
extends java.lang.annotation.Annotation

Method annotated by this will not be included in the RI.

Methods inherited from interface `java.lang.annotation.Annotation`
`annotationType, equals, hashCode, toString`

Package
CTL.CCompat

CTL.CCompat
Class AnyObj

```
java.lang.Object
   |
   +-CTL.CCompat.AnyObj
```

All Implemented Interfaces:
Writable

---

public class **AnyObj**
extends java.lang.Object
implements Writable

Compatibility with C++ any objects. Each class can define their AnyObj identifier by having a public string attribute anyobj_ident.

Field Summary

private	data Contained data

Constructor Summary

public	AnyObj(java.lang.Object obj) Constructor

Method Summary

java.lang.Object	getData() Retrieve the contained data
void	read(SerialIn in) Read from stream
java.lang.String	toString() Retrieve a string representation of this object
void	write(SerialOut out) Write to stream

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `CTL.Serialize.Writable`

`read, write`

Fields

(continued from last page)

data

```
private java.lang.Object data
```

Contained data

Constructors

AnyObj

```
public AnyObj(java.lang.Object obj)
```

Constructor

Methods

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

---

getData

```
public java.lang.Object getData()
```

Retrieve the contained data

Returns:
Object

---

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read from stream

Parameters:
`in` - Stream to read from

---

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write to stream

Parameters:

(continued from last page)

`out` - Stream to write to

CTL.CCompat
Class CArray

```
java.lang.Object
   ┗-CTL.CCompat.CArray
```

All Implemented Interfaces:
TemplHack, Writable

---

public class **CArray**
extends java.lang.Object
implements Writable, TemplHack

C++ array compatibility class

Field Summary

private	arr Actual array
private	type TypeTree for nested templated arrays

Constructor Summary

public	CArray() Simple constructor
public	CArray(int size) Constructor with known array size

Method Summary

java.lang.Object	get(int idx) Get one element's value
void	read(SerialIn in) Read from stream
void	read(SerialIn in, int len) Read from stream
void	set(int idx, java.lang.Object value) Set a new value for one element
void	setTypes(TypeTree[] types) Template hack
java.lang.String	toString() Conversion to string
void	write(SerialOut out) Write to stream

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Methods inherited from interface ReflWrap.TemplHack
setTypes

Fields

arr

```
private java.lang.Object arr
```

Actual array

type

```
private ReflWrap.TypeTree type
```

TypeTree for nested templated arrays

Constructors

CArray

```
public CArray()
```

Simple constructor

CArray

```
public CArray(int size)
```

Constructor with known array size

Methods

setTypes

```
public void setTypes(TypeTree[] types)
```

Template hack

Parameters:

`types` - TypeTree

(continued from last page)

set

```
public void set(int idx,
         java.lang.Object value)
```

Set a new value for one element

Parameters:

`idx` - Index
`value` - Value

---

get

```
public java.lang.Object get(int idx)
```

Get one element's value

Parameters:

`idx` - Index

Returns:

Value

---

toString

```
public java.lang.String toString()
```

Conversion to string

Returns:

String

---

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read from stream

Parameters:

`in` - Stream to read from

---

read

```
public void read(SerialIn in,
         int len)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read from stream

Parameters:

`in` - Stream to read from
`len` - Length

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write to stream

Parameters:

`out` - Stream to write to

CTL.CCompat
Class CTLcc

```
java.lang.Object
   ┗-CTL.CCompat.CTLcc
```

public class **CTLcc**
extends java.lang.Object

Compiler which converts CTL4j interfaces to a C++ component CI

Constructor Summary

public	CTLcc()

Method Summary

static java.lang.String	classRI(ClassInfo cinfo) Generates a component interface (CI) for a specific class
static java.lang.String	head() Common header for all CIs
static java.lang.String	headerGuard(ClassInfo cinfo) Header guard for a specific class
static void	main(java.lang.String[] args)
static java.lang.String	spitOutRI(ClassInfo cinfo) Convenience function
static java.lang.String	type2RI(java.lang.String typ) Conversion from Java types to CTL types

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

CTLcc

`public` **`CTLcc`**`()`

Methods

(continued from last page)

head

```
private static java.lang.String head()
```

Common header for all CIs

Returns:
Header

---

headerGuard

```
private static java.lang.String headerGuard(ClassInfo cinfo)
```

Header guard for a specific class

Parameters:
`cinfo` - ClassInfo object

Returns:
Header guard

---

type2RI

```
private static java.lang.String type2RI(java.lang.String typ)
```

Conversion from Java types to CTL types

Parameters:
`typ` - String representation of a Java type

Returns:
String representation of the equivalent CTL type

---

classRI

```
private static java.lang.String classRI(ClassInfo cinfo)
```

Generates a component interface (CI) for a specific class

Parameters:
`cinfo` - Class to use

Returns:
String Complete component interface

---

spitOutRI

```
private static java.lang.String spitOutRI(ClassInfo cinfo)
```

Convenience function

Parameters:
`cinfo` - Class to use

Returns:
CI with common header and header guards

(continued from last page)

main

```
public static void main(java.lang.String[] args)
```

Package

CTL.Comm

CTL.Comm
Class BuffyIn

```
java.lang.Object
   |
   +-CTL.Comm.BuffyIn
```

public class **BuffyIn**
extends java.lang.Object

Simple input buffer

Field Summary

private	bin
public	i

Constructor Summary

public	BuffyIn(byte[] data)

Method Summary

void	changeEndianess(java.nio.ByteOrder order)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

bin

`private java.io.ByteArrayInputStream` **`bin`**

i

`public CTL.Streams.OIStream` **`i`**

Constructors

(continued from last page)

BuffyIn

```
public BuffyIn(byte[] data)
```

Methods

changeEndianess

```
public void changeEndianess(java.nio.ByteOrder order)
```

CTL.Comm
Class BuffyOut

```
java.lang.Object
   ┗-CTL.Comm.BuffyOut
```

public class **BuffyOut**
extends java.lang.Object

Simple output buffer

Field Summary

private	bout
public	o

Constructor Summary

public	BuffyOut()

Method Summary

byte[]	getBytes()

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

bout

`private java.io.ByteArrayOutputStream` **`bout`**

o

`public CTL.Streams.OOStream` **`o`**

Constructors

(continued from last page)

BuffyOut

```
public BuffyOut()
```

Methods

getBytes

```
public byte[] getBytes()
```

CTL.Comm
Class Communicator

```
java.lang.Object
   |
   +-CTL.Comm.Communicator
```

Direct Known Subclasses:
TCPCommunicator, StreamCommunicator, HTTPCommunicator

---

public abstract class **Communicator**
extends java.lang.Object

Base class for all CTL communicators

Field Summary

private	running Flag for signalling

Constructor Summary

public	Communicator()

Method Summary

abstract void	accept()
abstract void	close()
abstract void	connect(PeerID remote)
abstract void	listen()
void	notifyErr() Notifies this communicator of a critical error
abstract PeerID	pid()
abstract byte[]	recv()
abstract byte[]	recv(long len)
void	send(byte[] data)
void	send(byte[] data, boolean debug)
void	send(byte[] data, long len)

abstract void	send(byte[] data, long len, boolean debug)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

running

```
private boolean running
```

Flag for signalling

Constructors

Communicator

```
public Communicator()
```

Methods

notifyErr

```
public final void notifyErr()
```

Notifies this communicator of a critical error

pid

```
public abstract PeerID pid()
```

recv

```
public abstract byte[] recv()
  throws CTLException,
         java.io.IOException
```

recv

```
public abstract byte[] recv(long len)
  throws CTLException,
         java.io.IOException
```

(continued from last page)

send

```
public abstract void send(byte[] data,
         long len,
         boolean debug)
  throws java.io.IOException
```

---

send

```
public final void send(byte[] data,
         boolean debug)
  throws java.io.IOException
```

---

send

```
public final void send(byte[] data,
         long len)
  throws java.io.IOException
```

---

send

```
public final void send(byte[] data)
  throws java.io.IOException
```

---

accept

```
public abstract void accept()
  throws java.io.IOException
```

---

connect

```
public abstract void connect(PeerID remote)
  throws java.io.IOException,
         java.net.UnknownHostException
```

---

listen

```
public abstract void listen()
  throws java.io.IOException
```

---

close

```
public abstract void close()
  throws java.io.IOException
```

CTL.Comm
Class DNSSD

```
java.lang.Object
   |
   +-CTL.Comm.DNSSD
```

All Implemented Interfaces:
com.apple.dnssd.ResolveListener, com.apple.dnssd.RegisterListener, com.apple.dnssd.BrowseListener

---

public class **DNSSD**
extends java.lang.Object
implements com.apple.dnssd.BrowseListener, com.apple.dnssd.RegisterListener, com.apple.dnssd.ResolveListener

Code for DNS service discovery support

Field Summary

private	isReg
private	map

Constructor Summary

public	DNSSD()
public	DNSSD(java.lang.String name, int port)

Method Summary

Location	discover(java.lang.String name)
static void	main(java.lang.String[] args)
void	operationFailed(com.apple.dnssd.DNSSDService service, int errorCode)
void	serviceFound(com.apple.dnssd.DNSSDService browser, int flags, int ifIndex, java.lang.String name, java.lang.String type, java.lang.String domain)
void	serviceLost(com.apple.dnssd.DNSSDService browser, int flags, int ifIndex, java.lang.String name, java.lang.String regType, java.lang.String domain)
void	serviceRegistered(com.apple.dnssd.DNSSDRegistration reg, int flags, java.lang.String name, java.lang.String type, java.lang.String domain)
void	serviceResolved(com.apple.dnssd.DNSSDService resolver, int flags, int ifIndex, java.lang.String fullName, java.lang.String hostName, int port, com.apple.dnssd.TXTRecord txtRecord)

java.lang.String	toString()

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface com.apple.dnssd.BrowseListener

serviceFound, serviceLost

Methods inherited from interface com.apple.dnssd.BaseListener

operationFailed

Methods inherited from interface com.apple.dnssd.RegisterListener

serviceRegistered

Methods inherited from interface com.apple.dnssd.BaseListener

operationFailed

Methods inherited from interface com.apple.dnssd.ResolveListener

serviceResolved

Methods inherited from interface com.apple.dnssd.BaseListener

operationFailed

Fields

isReg

```
private boolean isReg
```

map

```
private java.util.HashMap map
```

Constructors

DNSSD

```
public DNSSD()
```

(continued from last page)

DNSSD

```
public DNSSD(java.lang.String name,
             int port)
```

Methods

operationFailed

```
public void operationFailed(com.apple.dnssd.DNSSDService service,
         int errorCode)
```

---

serviceRegistered

```
public void serviceRegistered(com.apple.dnssd.DNSSDRegistration reg,
         int flags,
         java.lang.String name,
         java.lang.String type,
         java.lang.String domain)
```

---

serviceResolved

```
public void serviceResolved(com.apple.dnssd.DNSSDService resolver,
         int flags,
         int ifIndex,
         java.lang.String fullName,
         java.lang.String hostName,
         int port,
         com.apple.dnssd.TXTRecord txtRecord)
```

---

serviceFound

```
public void serviceFound(com.apple.dnssd.DNSSDService browser,
         int flags,
         int ifIndex,
         java.lang.String name,
         java.lang.String type,
         java.lang.String domain)
```

---

serviceLost

```
public void serviceLost(com.apple.dnssd.DNSSDService browser,
         int flags,
         int ifIndex,
         java.lang.String name,
         java.lang.String regType,
         java.lang.String domain)
```

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toString

```
public java.lang.String toString()
```

discover

```
public Location discover(java.lang.String name)
```

main

```
public static void main(java.lang.String[] args)
```

CTL.Comm
Class HTTPCommunicator

```
java.lang.Object
   |
   +-CTL.Comm.Communicator
      |
      +-CTL.Comm.HTTPCommunicator
```

public class **HTTPCommunicator**
extends Communicator

HTTP protocol communication
See Also:
TCPCommunicator

Field Summary

private	content
private static	host
private static	port
private static	ssock
private	url

Fields inherited from class CTL.Comm.Communicator

running

Constructor Summary

public	HTTPCommunicator(java.lang.String u)
public	HTTPCommunicator()

Method Summary

void	accept()
void	close()
void	connect(PeerID pid)
void	listen()
PeerID	pid()

byte[]	recv()
byte[]	recv(long len)
void	send(byte[] data, long len, boolean debug)
void	setPort(int port)

Methods inherited from class CTL.Comm.Communicator

accept, close, connect, listen, notifyErr, pid, recv, recv, send, send, send, send

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

ssock

```
private static java.net.ServerSocket ssock
```

host

```
private static CTL.Types.IPaddr host
```

port

```
private static int port
```

url

```
private Hitman.HURL url
```

content

```
private byte content
```

Constructors

(continued from last page)

HTTPCommunicator

```
public HTTPCommunicator(java.lang.String u)
```

HTTPCommunicator

```
public HTTPCommunicator()
```

Methods

setPort

```
public void setPort(int port)
```

---

listen

```
public void listen()
  throws java.io.IOException
```

---

pid

```
public PeerID pid()
```

---

connect

```
public void connect(PeerID pid)
  throws java.net.UnknownHostException,
         java.io.IOException
```

---

accept

```
public void accept()
  throws java.io.IOException
```

---

close

```
public void close()
  throws java.io.IOException
```

(continued from last page)

send

```
public void send(byte[] data,
         long len,
         boolean debug)
  throws java.io.IOException
```

---

recv

```
public byte[] recv(long len)
  throws java.io.IOException
```

---

recv

```
public byte[] recv()
  throws java.io.IOException
```

CTL.Comm
Class PipeCommunicator

```
java.lang.Object
   |
   +-CTL.Comm.PipeCommunicator
```

public class **PipeCommunicator**
extends java.lang.Object

Communication over SSH pipes
See Also:
TCPCommunicator

Constructor Summary

public	PipeCommunicator()

Method Summary

void	accept()
void	close()
void	connect(PeerID remote)
void	listen()
void	notifyErr()
PeerID	pid()
byte[]	recv()
void	send(byte[] data, int len, boolean debug)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

PipeCommunicator

public **PipeCommunicator**()

(continued from last page)

Methods

notifyErr

```
public void notifyErr()
```

pid

```
public PeerID pid()
```

send

```
public void send(byte[] data,
         int len,
         boolean debug)
  throws java.io.IOException
```

recv

```
public byte[] recv()
  throws java.io.IOException,
         CTLException
```

accept

```
public void accept()
  throws java.io.IOException
```

connect

```
public void connect(PeerID remote)
  throws java.net.UnknownHostException,
         java.io.IOException
```

close

```
public void close()
  throws java.io.IOException
```

listen

```
public void listen()
  throws java.io.IOException
```

CTL.Comm
Class SSHv2

```
java.lang.Object
   |
   +-CTL.Comm.SSHv2
```

All Implemented Interfaces:
java.lang.Runnable

---

public class **SSHv2**
extends java.lang.Object
implements java.lang.Runnable

Wrapper for the jsch SSHv2 API

Field Summary

private	comm Communicator which uses this transport
private	loc Location of the remote machine
private	start Command to invoke

Constructor Summary

public	SSHv2(Location loc, Communicator comm, Env env) Initialization

Method Summary

static boolean	hasPrivateKey() Check if the user has a RSA private key for SSH connections
void	run() Runs the command specified by the Location on the remote machine

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `java.lang.Runnable`

`run`

Fields

(continued from last page)

start

```
private java.lang.String start
```

Command to invoke

---

loc

```
private CTL.Types.Location loc
```

Location of the remote machine

---

comm

```
private CTL.Comm.Communicator comm
```

Communicator which uses this transport

Constructors

SSHv2

```
public SSHv2(Location loc,
             Communicator comm,
             Env env)
```

Initialization

Parameters:

`loc` - Location

Methods

hasPrivateKey

```
public static boolean hasPrivateKey()
```

Check if the user has a RSA private key for SSH connections

Returns:

True if he does, false otherwise

---

run

```
public void run()
```

Runs the command specified by the Location on the remote machine

CTL.Comm
Class StreamCommunicator

```
java.lang.Object
   |
   +-CTL.Comm.Communicator
      |
      +-CTL.Comm.StreamCommunicator
```

public class **StreamCommunicator**
extends Communicator

Simple communicator which write to a stream

Field Summary

private	out

Fields inherited from class CTL.Comm.Communicator

running

Constructor Summary

public	StreamCommunicator()

Method Summary

void	accept()
void	close()
void	connect(PeerID remote)
void	listen()
java.io.ByteArrayOutputStream	output()
PeerID	pid()
byte[]	recv()
byte[]	recv(long len)
void	send(byte[] data, long len, boolean debug)

Methods inherited from class CTL.Comm.Communicator

accept, close, connect, listen, notifyErr, pid, recv, recv, send, send, send, send

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

out

```
private java.io.ByteArrayOutputStream out
```

Constructors

StreamCommunicator

```
public StreamCommunicator()
```

Methods

output

```
public java.io.ByteArrayOutputStream output()
```

---

recv

```
public byte[] recv()
  throws CTLException,
         java.io.IOException
```

---

recv

```
public byte[] recv(long len)
  throws CTLException,
         java.io.IOException
```

---

send

```
public void send(byte[] data,
         long len,
         boolean debug)
  throws java.io.IOException
```

(continued from last page)

pid

```
public PeerID pid()
```

---

accept

```
public void accept()
  throws java.io.IOException
```

---

connect

```
public void connect(PeerID remote)
  throws java.io.IOException,
         java.net.UnknownHostException
```

---

listen

```
public void listen()
  throws java.io.IOException
```

---

close

```
public void close()
  throws java.io.IOException
```

CTL.Comm
Class TCPCommunicator

```
java.lang.Object
   |
   +-CTL.Comm.Communicator
      |
      +-CTL.Comm.TCPCommunicator
```

public class **TCPCommunicator**
extends Communicator

TCP/IP communication handling

Field Summary

private	dbgsock Socket connection to the remote debugger
private	host Local IP
private	port Local port
private	sel Selector for this communicator
private	sock Socket connection to the communication partner
private	ssock

Fields inherited from class CTL.Comm.Communicator

running

Constructor Summary

public	TCPCommunicator() Default constructor
public	TCPCommunicator(java.lang.String host, int port, int lport) Constructor for known remote host and port
public	TCPCommunicator(int port) Constructor for known remote port

Method Summary

void	accept() Accept connections

void	attachDebugger(PeerID dbgHost) Initialize connection to debugger
void	close() Close the connection
void	connect(PeerID pid) Connect to peer
static IPaddr	determineIP(java.lang.String host, int port) Open a temporary TCP connection to determine the outgoing IP for communication with the target IP
void	listen() Listen for new connections
PeerID	pid() Retrieve the PeerID
byte[]	recv() Receive a CTL packet (length is determined from header)
byte[]	recv(long len) Receive a specific amount of data
void	send(byte[] data, long len, boolean debug) Send a specific amount of data
void	sendDebug(byte[] data) Send data to the debugger
void	setHost(IPaddr host) Change the contained IP address

Methods inherited from class CTL.Comm.Communicator

accept, close, connect, listen, notifyErr, pid, recv, recv, send, send, send, send

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

host

```
private CTL.Types.IPaddr host
```

Local IP

port

```
private int port
```

Local port

sel

```
private java.nio.channels.Selector sel
```

Selector for this communicator

sock

```
private java.net.Socket sock
```

Socket connection to the communication partner

dbgsock

```
private java.net.Socket dbgsock
```

Socket connection to the remote debugger

ssock

```
private java.net.ServerSocket ssock
```

Constructors

TCPCommunicator

```
public TCPCommunicator()
```

Default constructor

TCPCommunicator

```
public TCPCommunicator(java.lang.String host,
                       int port,
                       int lport)
```

Constructor for known remote host and port

TCPCommunicator

```
public TCPCommunicator(int port)
```

Constructor for known remote port

Methods

setHost

```
public void setHost(IPaddr host)
```

Change the contained IP address

Parameters:

`host` - Host

accept

```
public void accept()
  throws java.io.IOException
```

Accept connections

listen

```
public void listen()
  throws java.io.IOException
```

Listen for new connections

pid

```
public PeerID pid()
```

Retrieve the PeerID

Returns:
PeerID

connect

```
public void connect(PeerID pid)
  throws java.net.UnknownHostException,
         java.io.IOException
```

Connect to peer

Parameters:
`pid` - PeerID of remote host

attachDebugger

```
private void attachDebugger(PeerID dbgHost)
  throws java.net.UnknownHostException,
         java.io.IOException
```

Initialize connection to debugger

Parameters:
`dbgHost` - Location of the debugger

close

```
public void close()
  throws java.io.IOException
```

Close the connection

send

```
public void send(byte[] data,
          long len,
          boolean debug)
  throws java.io.IOException
```

(continued from last page)

Send a specific amount of data

Parameters:

`data` - Bytes to send
`len` - Number of bytes to send
`debug` - Whether or not to send the data to the debugger

---

sendDebug

```
public void sendDebug(byte[] data)
  throws java.io.IOException
```

Send data to the debugger

Parameters:

`data` - Bytes to send

---

recv

```
public byte[] recv(long len)
  throws java.io.IOException,
         CTLException
```

Receive a specific amount of data

Parameters:

`len` - Number of bytes to receive

Returns:

Data

---

recv

```
public byte[] recv()
  throws java.io.IOException,
         CTLException
```

Receive a CTL packet (length is determined from header)

Returns:

Data

---

determineIP

```
public static IPaddr determineIP(java.lang.String host,
         int port)
```

Open a temporary TCP connection to determine the outgoing IP for communication with the target IP

Returns:

Determined IP address

Package
CTL.Serialize

CTL.Serialize
Class ASCIIOut

```
java.lang.Object
   |
   +-CTL.Streams.DataOutputStream2
      |
      +-CTL.Serialize.SerialOut
         |
         +-CTL.Serialize.CTLOut
            |
            +-CTL.Serialize.ASCIIOut
```

All Implemented Interfaces:
java.io.DataOutput

---

public class **ASCIIOut**
extends CTLOut

Human-readable output. Acts as a proof-of-concept for pluggable serializers.

Field Summary

private	file

Fields inherited from class CTL.Streams.DataOutputStream2

stream

Constructor Summary

public	ASCIIOut(java.io.OutputStream out, java.io.OutputStream file)

Method Summary

void	__writeArray(java.lang.Object data)
void	close()
void	dump(java.lang.String s)
void	flush()
void	writeArray(java.lang.Object data)
void	writeBoolean(boolean data)
void	writeByte(byte data)
void	writeChar(char data)

void	writeData(java.lang.Object data)
void	writeDouble(double data)
void	writeFloat(float data)
void	writeInt(int data)
void	writeLong(long data)
void	writeObject(java.lang.Object data)
void	writeShort(short data)
void	writeString(java.lang.String data)
void	writeWString(java.lang.String data)

Methods inherited from class CTL.Serialize.CTLOut

__writeArray, writeArray, writeData, writeObject, writeString, writeWString

Methods inherited from class CTL.Serialize.SerialOut

__writeArray, serialWrite, writeArray, writeData, writeObject, writeString, writeWString

Methods inherited from class CTL.Streams.DataOutputStream2

close, flush, write, write, write, writeBoolean, writeByte, writeByte, writeBytes, writeChar, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeShort, writeUTF

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataOutput

write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Fields

file

```
private CTL.Serialize.CTLOut file
```

(continued from last page)

Constructors

ASCIIOut

```
public ASCIIOut(java.io.OutputStream out,
                java.io.OutputStream file)
```

Methods

dump

```
private void dump(java.lang.String s)
  throws java.io.IOException
```

---

writeBoolean

```
public void writeBoolean(boolean data)
  throws java.io.IOException
```

---

writeByte

```
public void writeByte(byte data)
  throws java.io.IOException
```

---

writeChar

```
public void writeChar(char data)
  throws java.io.IOException
```

---

writeDouble

```
public void writeDouble(double data)
  throws java.io.IOException
```

---

writeFloat

```
public void writeFloat(float data)
  throws java.io.IOException
```

---

writeInt

```
public void writeInt(int data)
  throws java.io.IOException
```

writeLong

```
public void writeLong(long data)
  throws java.io.IOException
```

writeShort

```
public void writeShort(short data)
  throws java.io.IOException
```

writeString

```
public void writeString(java.lang.String data)
  throws java.io.IOException
```

Write a string to the stream (C-style one byte characters)

writeWString

```
public void writeWString(java.lang.String data)
  throws java.io.IOException
```

Write a standard Java wide string (2 byte chars) to the stream

writeData

```
protected void writeData(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

writeArray

```
public void writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Write an array to the stream

__writeArray

```
public void __writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Write the array's elements to the stream

(continued from last page)

writeObject

```
public void writeObject(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write an object to the stream (Any-Object)

---

flush

```
public void flush()
  throws java.io.IOException
```

---

close

```
public void close()
  throws java.io.IOException
```

CTL.Serialize
Class CTLIn

```
java.lang.Object
   |
   +-CTL.Streams.DataInputStream2
      |
      +-CTL.Serialize.SerialIn
         |
         +-CTL.Serialize.CTLIn
```

All Implemented Interfaces:
java.io.DataInput

---

public class **CTLIn**
extends SerialIn

Fields inherited from class CTL.Streams.DataInputStream2
stream, swapBytes

Constructor Summary

public	CTLIn(java.io.InputStream in) Generate a new stream

Method Summary

java.lang.Object[]	__readArray(java.lang.Class type, java.util.LinkedList param, int len) Read the elements of an array from the stream
java.lang.Object[]	readArray(java.lang.Class type, java.util.LinkedList param) Read an array from the stream
java.lang.Object	readObject() Read an object from the stream (Any-Object)
java.lang.String	readString() Read a C-style string from the stream (1 byte chars)
Tupel	readTupel(java.lang.Class[] types) Read a tupel from the stream
java.lang.String	readWString() Read a wide string from the stream (2 byte chars)
java.lang.String	toString() Retrieve a string representation of this object

Methods inherited from class CTL.Serialize.SerialIn
__readArray, readArray, readObject, readString, readTupel, readWString, serialRead, serialRead, serialRead

Methods inherited from class CTL.Streams.DataInputStream2

available, changeEndianess, read, readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataInput

readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Constructors

CTLIn

```
public CTLIn(java.io.InputStream in)
```

Generate a new stream

Parameters:
in - Underlying input stream

Methods

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

readString

```
public java.lang.String readString()
  throws java.io.IOException
```

Read a C-style string from the stream (1 byte chars)

Returns:
Value

readWString

```
public java.lang.String readWString()
  throws java.io.IOException
```

Read a wide string from the stream (2 byte chars)

Returns:

(continued from last page)

Value

readArray

```
public java.lang.Object[] readArray(java.lang.Class type,
         java.util.LinkedList param)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read an array from the stream

Parameters:

`type` - Type of the array

Returns:

Value

__readArray

```
public java.lang.Object[] __readArray(java.lang.Class type,
         java.util.LinkedList param,
         int len)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read the elements of an array from the stream

Parameters:

`type` - Type of the array

`len` - Number of elements to read

Returns:

Value

readTupel

```
public Tupel readTupel(java.lang.Class[] types)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Read a tupel from the stream

Parameters:

`types` - Type parameters of the tupel

Returns:

Value

(continued from last page)

readObject

```
public java.lang.Object readObject()
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read an object from the stream (Any-Object)

Returns:

Value

CTL.Serialize
Class CTLOut

```
java.lang.Object
   |
   +-CTL.Streams.DataOutputStream2
      |
      +-CTL.Serialize.SerialOut
         |
         +-CTL.Serialize.CTLOut
```

All Implemented Interfaces:
java.io.DataOutput

Direct Known Subclasses:
ASCIIOut

---

public class **CTLOut**
extends SerialOut

Fields inherited from class CTL.Streams.DataOutputStream2
stream

Constructor Summary

public	CTLOut(java.io.OutputStream out) Generate a new stream

Method Summary

void	__writeArray(java.lang.Object data) Write the array's elements to the stream
void	writeArray(java.lang.Object data) Write an array to the stream
void	writeData(java.lang.Object data)
void	writeObject(java.lang.Object data) Write an object to the stream (Any-Object)
void	writeString(java.lang.String data) Write a string to the stream (C-style one byte characters)
void	writeWString(java.lang.String data) Write a standard Java wide string (2 byte chars) to the stream

Methods inherited from class CTL.Serialize.SerialOut
__writeArray, serialWrite, writeArray, writeData, writeObject, writeString, writeWString

Methods inherited from class CTL.Streams.DataOutputStream2

close, flush, write, write, write, writeBoolean, writeByte, writeByte, writeBytes, writeChar, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeShort, writeUTF

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataOutput

write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Constructors

CTLOut

```
public CTLOut(java.io.OutputStream out)
```

Generate a new stream

Parameters:

out - Underlying output stream

Methods

writeString

```
public void writeString(java.lang.String data)
  throws java.io.IOException
```

Write a string to the stream (C-style one byte characters)

Parameters:

data - Value

writeWString

```
public void writeWString(java.lang.String data)
  throws java.io.IOException
```

Write a standard Java wide string (2 byte chars) to the stream

Parameters:

data - Value

writeArray

```
public void writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Write an array to the stream

(continued from last page)

Parameters:

`data` - Value

__writeArray

```
public void __writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Write the array's elements to the stream

Parameters:

`data` - Value

---

writeObject

```
public void writeObject(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write an object to the stream (Any-Object)

Parameters:

`data` - Value

---

writeData

```
protected void writeData(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

CTL.Serialize
Class SerialIn

```
java.lang.Object
   |
   +-CTL.Streams.DataInputStream2
      |
      +-CTL.Serialize.SerialIn
```

All Implemented Interfaces:
java.io.DataInput

Direct Known Subclasses:
OIStream, CTLIn

---

public abstract class **SerialIn**
extends DataInputStream2

Fields inherited from class CTL.Streams.DataInputStream2
stream, swapBytes

Constructor Summary

public	SerialIn(java.io.InputStream in)

Method Summary

abstract java.lang.Object[]	__readArray(java.lang.Class type, java.util.LinkedList params, int len)
abstract java.lang.Object[]	readArray(java.lang.Class type, java.util.LinkedList params)
abstract java.lang.Object	readObject()
abstract java.lang.String	readString()
abstract Tupel	readTupel(java.lang.Class[] types)
abstract java.lang.String	readWString()
java.lang.Object	serialRead(java.lang.Class klass)
java.lang.Object	serialRead(java.lang.Class[] args)
java.lang.Object	serialRead(TypeTree tree) Read an object from the stream

Methods inherited from class CTL.Streams.DataInputStream2

available, changeEndianess, read, readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataInput

readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Constructors

SerialIn

```
public SerialIn(java.io.InputStream in)
```

Methods

readString

```
public abstract java.lang.String readString()
  throws java.io.IOException
```

readWString

```
public abstract java.lang.String readWString()
  throws java.io.IOException
```

readArray

```
public abstract java.lang.Object[] readArray(java.lang.Class type,
        java.util.LinkedList params)
  throws java.io.IOException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException
```

(continued from last page)

__readArray

```
public abstract java.lang.Object[] __readArray(java.lang.Class type,
         java.util.LinkedList params,
         int len)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

readTupel

```
public abstract Tupel readTupel(java.lang.Class[] types)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

readObject

```
public abstract java.lang.Object readObject()
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

serialRead

```
public java.lang.Object serialRead(java.lang.Class[] args)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

serialRead

```
public java.lang.Object serialRead(java.lang.Class klass)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

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serialRead

```
public java.lang.Object serialRead(TypeTree tree)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read an object from the stream

Parameters:

`tree` - TypeTree to read

Returns:

Value

CTL.Serialize
Class SerialOut

```
java.lang.Object
   |
   +-CTL.Streams.DataOutputStream2
      |
      +-CTL.Serialize.SerialOut
```

All Implemented Interfaces:
java.io.DataOutput

Direct Known Subclasses:
OOStream, CTLOut

---

public abstract class **SerialOut**
extends DataOutputStream2

Fields inherited from class CTL.Streams.DataOutputStream2
stream

Constructor Summary

public	SerialOut(java.io.OutputStream out)

Method Summary

abstract void	__writeArray(java.lang.Object data)
void	serialWrite(java.lang.Object data) Write an object to the stream (if one of the above function applies better to the data given, the relevant function will be called automagically.
abstract void	writeArray(java.lang.Object data)
abstract void	writeData(java.lang.Object data)
abstract void	writeObject(java.lang.Object data)
abstract void	writeString(java.lang.String data)
abstract void	writeWString(java.lang.String data)

Methods inherited from class CTL.Streams.DataOutputStream2
close, flush, write, write, write, writeBoolean, writeByte, writeByte, writeBytes, writeChar, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeShort, writeUTF

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataOutput

write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Constructors

SerialOut

```
public SerialOut(java.io.OutputStream out)
```

Methods

writeString

```
public abstract void writeString(java.lang.String data)
  throws java.io.IOException
```

writeWString

```
public abstract void writeWString(java.lang.String data)
  throws java.io.IOException
```

writeArray

```
public abstract void writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

__writeArray

```
public abstract void __writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

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writeObject

```
public abstract void writeObject(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

writeData

```
protected abstract void writeData(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

serialWrite

```
public void serialWrite(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write an object to the stream (if one of the above function applies better to the data given, the relevant function will be called automagically.

Parameters:

`data` - Value

CTL.Serialize
Interface Writable

All Known Implementing Classes:
WriteTable, TripleDash, MyRef, DoubleDash, rPointer, Tupel, Tree, Reference, PeerID, Location, IPaddr, Header, GroupInfo, Graph, FID, Except, CArray, AnyObj

public interface **Writable**

The Writable interface is an alternative method of serializing data via OIStream/OOStream, where the reading side must know exactly which type it wants to read. This is useful to read/write containers to a stream, like a header with a known structure. By using the Writable interface, information on how to read/write data can be encapsulated inside the data structures itself.

Method Summary

void	read(SerialIn in)
void	write(SerialOut out)

Methods

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Package
CTL.Streams

CTL.Streams
Class DataInputStream2

```
java.lang.Object
    |
    +-CTL.Streams.DataInputStream2
```

All Implemented Interfaces:
java.io.DataInput

Direct Known Subclasses:
SerialIn

---

public class **DataInputStream2**
extends java.lang.Object
implements java.io.DataInput

Replacement for Java's DataInputStream

Field Summary

private	stream
private	swapBytes

Constructor Summary

public	DataInputStream2(java.io.InputStream stream)

Method Summary

int	available()
void	changeEndianess(java.nio.ByteOrder order)
int	read(byte[] b)
boolean	readBoolean()
byte	readByte()
char	readChar()
double	readDouble()
float	readFloat()
void	readFully(byte[] b)

void	readFully(byte[] b, int off, int len)
int	readInt()
java.lang.String	readLine()
long	readLong()
short	readShort()
int	readUnsignedByte()
int	readUnsignedShort()
java.lang.String	readUTF()
int	skipBytes(int n)

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataInput
readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Fields

stream

private java.io.DataInputStream **stream**

swapBytes

private boolean **swapBytes**

Constructors

DataInputStream2

public **DataInputStream2**(java.io.InputStream stream)

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Methods

changeEndianess

```
public void changeEndianess(java.nio.ByteOrder order)
```

readBoolean

```
public boolean readBoolean()
  throws java.io.IOException
```

readByte

```
public byte readByte()
  throws java.io.IOException
```

readChar

```
public char readChar()
  throws java.io.IOException
```

readDouble

```
public double readDouble()
  throws java.io.IOException
```

readFloat

```
public float readFloat()
  throws java.io.IOException
```

readFully

```
public void readFully(byte[] b)
  throws java.io.IOException
```

readFully

```
public void readFully(byte[] b,
         int off,
         int len)
  throws java.io.IOException
```

readInt

```
public int readInt()
  throws java.io.IOException
```

readLine

```
public java.lang.String readLine()
  throws java.io.IOException
```

readLong

```
public long readLong()
  throws java.io.IOException
```

readShort

```
public short readShort()
  throws java.io.IOException
```

readUnsignedByte

```
public int readUnsignedByte()
  throws java.io.IOException
```

readUnsignedShort

```
public int readUnsignedShort()
  throws java.io.IOException
```

readUTF

```
public java.lang.String readUTF()
  throws java.io.IOException
```

skipBytes

```
public int skipBytes(int n)
  throws java.io.IOException
```

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available

```
public int available()
  throws java.io.IOException
```

---

read

```
public int read(byte[] b)
  throws java.io.IOException
```

CTL.Streams
Class DataOutputStream2

```
java.lang.Object
   |
   +-CTL.Streams.DataOutputStream2
```

All Implemented Interfaces:
java.io.DataOutput

Direct Known Subclasses:
SerialOut

---

public class **DataOutputStream2**
extends java.lang.Object
implements java.io.DataOutput

Replacement for Java's DataOutputStream

Field Summary

private	stream

Constructor Summary

public	DataOutputStream2(java.io.OutputStream stream)

Method Summary

void	close()
void	flush()
void	write(byte[] b)
void	write(byte[] b, int off, int len)
void	write(int b)
void	writeBoolean(boolean v)
void	writeByte(byte v)
void	writeByte(int v)
void	writeBytes(java.lang.String s)
void	writeChar(char v)

void	writeChar(int v)
void	writeChars(java.lang.String s)
void	writeDouble(double v)
void	writeFloat(float v)
void	writeInt(int v)
void	writeLong(long v)
void	writeShort(int v)
void	writeShort(short v)
void	writeUTF(java.lang.String str)

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataOutput
write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Fields

stream

```
private java.io.DataOutputStream stream
```

Constructors

DataOutputStream2

```
public DataOutputStream2(java.io.OutputStream stream)
```

Methods

write

```
public void write(byte[] b)
  throws java.io.IOException
```

write

```
public void write(byte[] b,
          int off,
          int len)
  throws java.io.IOException
```

write

```
public void write(int b)
  throws java.io.IOException
```

writeBoolean

```
public void writeBoolean(boolean v)
  throws java.io.IOException
```

writeByte

```
public void writeByte(int v)
  throws java.io.IOException
```

writeBytes

```
public void writeBytes(java.lang.String s)
  throws java.io.IOException
```

writeChar

```
public void writeChar(int v)
  throws java.io.IOException
```

writeChars

```
public void writeChars(java.lang.String s)
  throws java.io.IOException
```

writeDouble

```
public void writeDouble(double v)
  throws java.io.IOException
```

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writeFloat

```
public void writeFloat(float v)
  throws java.io.IOException
```

writeInt

```
public void writeInt(int v)
  throws java.io.IOException
```

writeLong

```
public void writeLong(long v)
  throws java.io.IOException
```

writeShort

```
public void writeShort(int v)
  throws java.io.IOException
```

writeShort

```
public void writeShort(short v)
  throws java.io.IOException
```

writeChar

```
public void writeChar(char v)
  throws java.io.IOException
```

writeByte

```
public void writeByte(byte v)
  throws java.io.IOException
```

writeUTF

```
public void writeUTF(java.lang.String str)
  throws java.io.IOException
```

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close

```
public void close()
  throws java.io.IOException
```

---

flush

```
public void flush()
  throws java.io.IOException
```

CTL.Streams
Interface InStream

All Known Implementing Classes:
OIStream

public interface **InStream**
extends java.io.DataInput

Interface for CTL input streams

Method Summary

java.lang.Object[]	__readArray(java.lang.Class type, java.util.LinkedList params, int len)
java.lang.Object[]	readArray(java.lang.Class type, java.util.LinkedList params)
java.lang.Object	readObject()
java.lang.String	readString()
Tupel	readTupel(java.lang.Class[] types)
java.lang.String	readWString()
java.lang.Object	serialRead(java.lang.Class klass)
java.lang.Object	serialRead(java.lang.Class[] args)
java.lang.Object	serialRead(TypeTree tree)

Methods inherited from interface java.io.DataInput

readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Methods

readString

```
public java.lang.String readString()
  throws java.io.IOException
```

(continued from last page)

readWString

```
public java.lang.String readWString()
  throws java.io.IOException
```

readArray

```
public java.lang.Object[] readArray(java.lang.Class type,
        java.util.LinkedList params)
  throws java.io.IOException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException
```

__readArray

```
public java.lang.Object[] __readArray(java.lang.Class type,
        java.util.LinkedList params,
        int len)
  throws java.io.IOException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException
```

readTupel

```
public Tupel readTupel(java.lang.Class[] types)
  throws java.io.IOException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException,
        CTLException
```

readObject

```
public java.lang.Object readObject()
  throws java.io.IOException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException
```

serialRead

```
public java.lang.Object serialRead(java.lang.Class[] args)
  throws java.io.IOException,
        java.lang.ClassNotFoundException,
        java.lang.InstantiationException,
        java.lang.IllegalAccessException,
        java.lang.reflect.InvocationTargetException
```

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serialRead

```
public java.lang.Object serialRead(java.lang.Class klass)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

serialRead

```
public java.lang.Object serialRead(TypeTree tree)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

CTL.Streams
Class IStream

```
java.lang.Object
   |
   +-CTL.Streams.IStream
```

public class **IStream**
extends java.lang.Object

"Intelligent" Stream: This special stream is handled just like an ObjectOutputStream, however, it saves information about the data which was written to it. Therefore, it is an easy interface to pass around data from different sources to one ObjectOutputStream and it is also capable of writing a "signature" string to the stream which can be interpreted by the readFromStream() call. This makes it possible to pass around larger amounts of arbitrary data via Object*putStreams w/o recreating the structure of the stream in code on both ends. It is also possible to query the size of the whole stream. Furthermore, the stream can write the data to other streams while keeping the data inside, which makes it ideal for debugging stream related applications.

Field Summary

private	in Input stream for the internal storage
private	list LinkedList of types of the stored data
private	out Output stream for the internal storage
private	size Size of the stream

Constructor Summary

public	IStream() Create a new IStream

Method Summary

void	close() Close the stream
void	flush() Flush the stream
void	readFromStream(SerialIn istr) Read data from another IStream
java.lang.Object	readType(java.lang.Class type) Read data from this stream
static java.lang.Object	readType(SerialIn input, java.lang.Class typ) Read data from an OIStream
void	reset() Reset the internal storage (via Piped*Streams)

int	streamSize() Retrieve the size of the data this stream holds
java.lang.String	toString() Retrieve a string representation of this object
void	write(java.lang.Object val) Write data to the stream
void	writeToIStream(SerialOut ostr) Write the data of this stream to another IStream while keeping it
void	writeToIStream(SerialOut ostr, boolean keep) Write the data of this stream to another IStream
void	writeToStream(SerialOut ostr) Write the data of this stream to another without keeping it
void	writeToStream(SerialOut ostr, boolean keep) Write the contents of this stream to another one
static void	writeType(SerialOut outp, java.lang.Object stuff) Write data to an OOStream

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

list

`private java.util.LinkedList list`

LinkedList of types of the stored data

in

`private CTL.Serialize.SerialIn in`

Input stream for the internal storage

out

`private CTL.Serialize.SerialOut out`

Output stream for the internal storage

size

`private int size`

Size of the stream

Constructors

(continued from last page)

IStream

```
public IStream()
```

Create a new IStream

Methods

reset

```
public void reset()
  throws java.io.IOException,
         CTLException
```

Reset the internal storage (via Piped*Streams)

---

flush

```
public void flush()
  throws java.io.IOException
```

Flush the stream

---

close

```
public void close()
  throws java.io.IOException
```

Close the stream

---

write

```
public void write(java.lang.Object val)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write data to the stream

Parameters:

`val` - Value

---

writeType

```
public static void writeType(SerialOut outp,
         java.lang.Object stuff)
  throws java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Write data to an OOStream

Parameters:

`outp` - Stream to write to

`stuff` - Data to write

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readType

```
public static java.lang.Object readType(SerialIn input,
         java.lang.Class typ)
  throws java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read data from an OIStream

Parameters:

`input` - Stream to read from
`typ` - Type to read

Returns:

Data read

---

readType

```
private java.lang.Object readType(java.lang.Class type)
  throws java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read data from this stream

Parameters:

`type` - Type to read

Returns:

Data read

---

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:

String

---

writeToStream

```
public void writeToStream(SerialOut ostr,
         boolean keep)
```

Write the contents of this stream to another one

Parameters:

`ostr` - Target stream
`keep` - Whether to keep the data in this stream

---

writeToStream

```
public void writeToStream(SerialOut ostr)
```

Write the data of this stream to another without keeping it

Parameters:

`ostr` - Target stream

writeToIStream

```
public void writeToIStream(SerialOut ostr)
```

Write the data of this stream to another IStream while keeping it

Parameters:

`ostr` - Target stream

writeToIStream

```
public void writeToIStream(SerialOut ostr,
                           boolean keep)
```

Write the data of this stream to another IStream

Parameters:

`ostr` - Target stream

`keep` - True if the data should be kept, false otherwise.

readFromStream

```
public void readFromStream(SerialIn istr)
```

Read data from another IStream

Parameters:

`istr` - Source stream

streamSize

```
public int streamSize()
```

Retrieve the size of the data this stream holds

Returns:

Size

CTL.Streams
Class IStream2

```
java.lang.Object
   |
   +-CTL.Streams.DataOutputStream2
      |
      +-CTL.Serialize.SerialOut
         |
         +-CTL.Streams.OOStream
            |
            +-CTL.Streams.IStream2
```

All Implemented Interfaces:
java.io.DataOutput, OutStream

---

public class **IStream2**
extends OOStream

Class which holds a number of function arguments in memory for later writing.

Field Summary

private	bout

Fields inherited from class CTL.Streams.OOStream
stream, swapBytes

Fields inherited from class CTL.Streams.DataOutputStream2
stream

Constructor Summary

public	IStream2()
public	IStream2(java.io.ByteArrayOutputStream bout)

Method Summary

byte[]	getBytes()
int	streamSize()
java.lang.String	toString()
void	write(int val)
void	write(java.lang.Object val)

void	writeToStream(OOStream str, boolean dummy)

Methods inherited from class CTL.Streams.OOStream

__writeArray, changeEndianess, close, flush, serialWrite, write, write, write, writeArray, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeData, writeDouble, writeFloat, writeInt, writeLong, writeObject, writeShort, writeString, writeUTF, writeWString

Methods inherited from class CTL.Serialize.SerialOut

__writeArray, serialWrite, writeArray, writeData, writeObject, writeString, writeWString

Methods inherited from class CTL.Streams.DataOutputStream2

close, flush, write, write, write, writeBoolean, writeByte, writeByte, writeBytes, writeChar, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeShort, writeUTF

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataOutput

write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Methods inherited from interface CTL.Streams.OutStream

__writeArray, serialWrite, writeArray, writeObject, writeString, writeWString

Methods inherited from interface java.io.DataOutput

write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Fields

bout

private java.io.ByteArrayOutputStream **bout**

Constructors

IStream2

public **IStream2**()

IStream2

```
public IStream2(java.io.ByteArrayOutputStream bout)
```

Methods

getBytes

```
private byte[] getBytes()
```

writeToStream

```
public void writeToStream(OOStream str,
          boolean dummy)
  throws java.io.IOException,
          java.lang.IllegalAccessException,
          java.lang.reflect.InvocationTargetException
```

streamSize

```
public int streamSize()
```

write

```
public void write(int val)
  throws java.io.IOException
```

write

```
public void write(java.lang.Object val)
  throws java.io.IOException,
          java.lang.IllegalAccessException,
          java.lang.reflect.InvocationTargetException
```

toString

```
public java.lang.String toString()
```

CTL.Streams
Class LittleEndian

```
java.lang.Object
   |
   +-CTL.Streams.LittleEndian
```

public class **LittleEndian**
extends java.lang.Object

Byte order conversion functions

Constructor Summary

public	LittleEndian()

Method Summary

static double	doubleReverseBytes(double d) Reverse the byte order of a double value
static float	floatReverseBytes(float f) Reverse the byte order of a float value

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

LittleEndian

`public` **`LittleEndian`**`()`

Methods

doubleReverseBytes

`public static double` **`doubleReverseBytes`**`(double d)`

Reverse the byte order of a double value

Parameters:
`d` - Source double

Returns:
Double with reversed bits

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floatReverseBytes

```
public static float floatReverseBytes(float f)
```

Reverse the byte order of a float value

Parameters:

`f` - Source float

Returns:

Float with reversed bits

CTL.Streams
Class OIStream

```
java.lang.Object
   ┣-CTL.Streams.DataInputStream2
      ┣-CTL.Serialize.SerialIn
         ┣-CTL.Streams.OIStream
```

All Implemented Interfaces:
InStream, java.io.DataInput

---

public class **OIStream**
extends SerialIn
implements java.io.DataInput, InStream

ObjectInputStream clone for the CTL

Field Summary

private	stream

Fields inherited from class CTL.Streams.DataInputStream2

stream, swapBytes

Constructor Summary

public	OIStream(java.io.InputStream in) Generate a new stream
public	OIStream(java.io.InputStream in, OOStream.Serial type) Constructor

Method Summary

java.lang.Object[]	__readArray(java.lang.Class type, java.util.LinkedList params, int len)
void	changeEndianess(java.nio.ByteOrder order)
int	read(byte[] b)
java.lang.Object[]	readArray(java.lang.Class type, java.util.LinkedList params)
boolean	readBoolean()
byte	readByte()
char	readChar()

double	readDouble()
float	readFloat()
void	readFully(byte[] b)
void	readFully(byte[] b, int off, int len)
int	readInt()
java.lang.String	readLine()
long	readLong()
java.lang.Object	readObject()
short	readShort()
java.lang.String	readString()
Tupel	readTupel(java.lang.Class[] types)
int	readUnsignedByte()
int	readUnsignedShort()
java.lang.String	readUTF()
java.lang.String	readWString()
java.lang.Object	serialRead(java.lang.Class klass)
java.lang.Object	serialRead(java.lang.Class[] args)
java.lang.Object	serialRead(TypeTree tree)
int	skipBytes(int n)

Methods inherited from class CTL.Serialize.SerialIn

__readArray, readArray, readObject, readString, readTupel, readWString, serialRead, serialRead, serialRead

Methods inherited from class CTL.Streams.DataInputStream2

available, changeEndianess, read, readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataInput

readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Methods inherited from interface CTL.Streams.InStream

__readArray, readArray, readObject, readString, readTupel, readWString, serialRead, serialRead, serialRead

Methods inherited from interface java.io.DataInput

readBoolean, readByte, readChar, readDouble, readFloat, readFully, readFully, readInt, readLine, readLong, readShort, readUnsignedByte, readUnsignedShort, readUTF, skipBytes

Fields

stream

```
private CTL.Serialize.SerialIn stream
```

Constructors

OIStream

```
public OIStream(java.io.InputStream in)
```

Generate a new stream

Parameters:

in - Underlying input stream

OIStream

```
public OIStream(java.io.InputStream in,
                OOStream.Serial type)
```

Constructor

Methods

changeEndianess

```
public void changeEndianess(java.nio.ByteOrder order)
```

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serialRead

```
public java.lang.Object serialRead(TypeTree tree)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read an object from the stream

serialRead

```
public java.lang.Object serialRead(java.lang.Class[] args)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

serialRead

```
public java.lang.Object serialRead(java.lang.Class klass)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

read

```
public int read(byte[] b)
  throws java.io.IOException
```

readInt

```
public int readInt()
  throws java.io.IOException
```

readString

```
public java.lang.String readString()
  throws java.io.IOException
```

readLong

```
public long readLong()
  throws java.io.IOException
```

readArray

```
public java.lang.Object[] readArray(java.lang.Class type,
         java.util.LinkedList params)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

__readArray

```
public java.lang.Object[] __readArray(java.lang.Class type,
         java.util.LinkedList params,
         int len)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

readTupel

```
public Tupel readTupel(java.lang.Class[] types)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

readObject

```
public java.lang.Object readObject()
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

readBoolean

```
public boolean readBoolean()
  throws java.io.IOException
```

readFloat

```
public float readFloat()
  throws java.io.IOException
```

readWString

```
public java.lang.String readWString()
  throws java.io.IOException
```

readUTF

```
public java.lang.String readUTF()
  throws java.io.IOException
```

readLine

```
public java.lang.String readLine()
  throws java.io.IOException
```

readDouble

```
public double readDouble()
  throws java.io.IOException
```

readChar

```
public char readChar()
  throws java.io.IOException
```

readUnsignedShort

```
public int readUnsignedShort()
  throws java.io.IOException
```

readUnsignedByte

```
public int readUnsignedByte()
  throws java.io.IOException
```

readShort

```
public short readShort()
  throws java.io.IOException
```

(continued from last page)

readByte

```
public byte readByte()
  throws java.io.IOException
```

skipBytes

```
public int skipBytes(int n)
  throws java.io.IOException
```

readFully

```
public void readFully(byte[] b,
         int off,
         int len)
  throws java.io.IOException
```

readFully

```
public void readFully(byte[] b)
  throws java.io.IOException
```

CTL.Streams
Class OOStream

```
java.lang.Object
   |-CTL.Streams.DataOutputStream2
      |-CTL.Serialize.SerialOut
         |-CTL.Streams.OOStream
```

All Implemented Interfaces:
OutStream, java.io.DataOutput

Direct Known Subclasses:
IStream2

---

public class **OOStream**
extends SerialOut
implements java.io.DataOutput, OutStream

ObjectOutputStream clone for the CTL

Nested Class Summary

class	OOStream.Serial OOStream.Serial

Field Summary

private	stream
private	swapBytes

Fields inherited from class CTL.Streams.DataOutputStream2

stream

Constructor Summary

public	OOStream(java.io.OutputStream out) Generate a new stream
public	OOStream(java.io.OutputStream out, OOStream.Serial type) Constructor

Method Summary

void	__writeArray(java.lang.Object data)
void	changeEndianess(java.nio.ByteOrder order)

void	close()
void	flush()
void	serialWrite(java.lang.Object data)
void	write(byte[] b)
void	write(byte[] b, int off, int len)
void	write(int i)
void	writeArray(java.lang.Object data)
void	writeBoolean(boolean v)
void	writeByte(int v)
void	writeBytes(java.lang.String s)
void	writeChar(int v)
void	writeChars(java.lang.String s)
void	writeData(java.lang.Object data)
void	writeDouble(double v)
void	writeFloat(float v)
void	writeInt(int v)
void	writeLong(long v)
void	writeObject(java.lang.Object data)
void	writeShort(int v)
void	writeString(java.lang.String s)
void	writeUTF(java.lang.String s)
void	writeWString(java.lang.String s)

Methods inherited from class CTL.Serialize.SerialOut

__writeArray, serialWrite, writeArray, writeData, writeObject, writeString, writeWString

Methods inherited from class CTL.Streams.DataOutputStream2
close, flush, write, write, write, writeBoolean, writeByte, writeByte, writeBytes, writeChar, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeShort, writeUTF

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.io.DataOutput
write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Methods inherited from interface CTL.Streams.OutStream
__writeArray, serialWrite, writeArray, writeObject, writeString, writeWString

Methods inherited from interface java.io.DataOutput
write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF

Fields

swapBytes

```
private boolean swapBytes
```

stream

```
private CTL.Serialize.SerialOut stream
```

Constructors

OOStream

```
public OOStream(java.io.OutputStream out)
```

Generate a new stream

Parameters:
out - Underlying output stream

OOStream

```
public OOStream(java.io.OutputStream out,
                OOStream.Serial type)
```

Constructor

Methods

changeEndianess

```
public void changeEndianess(java.nio.ByteOrder order)
```

serialWrite

```
public void serialWrite(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write an object to the stream (if one of the above function applies better to the data given, the relevant function will be called automagically.

flush

```
public void flush()
  throws java.io.IOException
```

close

```
public void close()
  throws java.io.IOException
```

writeString

```
public void writeString(java.lang.String s)
  throws java.io.IOException
```

writeArray

```
public void writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

writeBytes

```
public void writeBytes(java.lang.String s)
  throws java.io.IOException
```

(continued from last page)

writeLong

```
public void writeLong(long v)
  throws java.io.IOException
```

writeInt

```
public void writeInt(int v)
  throws java.io.IOException
```

write

```
public void write(byte[] b,
         int off,
         int len)
  throws java.io.IOException
```

writeObject

```
public void writeObject(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

__writeArray

```
public void __writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

writeWString

```
public void writeWString(java.lang.String s)
  throws java.io.IOException
```

writeUTF

```
public void writeUTF(java.lang.String s)
  throws java.io.IOException
```

writeChars

```
public void writeChars(java.lang.String s)
  throws java.io.IOException
```

(continued from last page)

writeDouble

```
public void writeDouble(double v)
  throws java.io.IOException
```

writeFloat

```
public void writeFloat(float v)
  throws java.io.IOException
```

writeChar

```
public void writeChar(int v)
  throws java.io.IOException
```

writeShort

```
public void writeShort(int v)
  throws java.io.IOException
```

writeByte

```
public void writeByte(int v)
  throws java.io.IOException
```

writeBoolean

```
public void writeBoolean(boolean v)
  throws java.io.IOException
```

write

```
public void write(byte[] b)
  throws java.io.IOException
```

write

```
public void write(int i)
  throws java.io.IOException
```

(continued from last page)

writeData

```
protected void writeData(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

CTL.Streams
Class OOStream.Serial

```
java.lang.Object
   ┗-java.lang.Enum
      ┗-CTL.Streams.OOStream.Serial
```

All Implemented Interfaces:
java.io.Serializable, java.lang.Comparable

---

public static final class **OOStream.Serial**
extends java.lang.Enum

Field Summary

public static final	ASCII
public static final	CTL

Fields inherited from class java.lang.Enum

name, ordinal

Constructor Summary

private	OOStream.Serial()

Method Summary

static OOStream.Serial	valueOf(java.lang.String name)
static OOStream.Serial[]	values()

Methods inherited from class java.lang.Enum

clone, compareTo, equals, getDeclaringClass, hashCode, name, ordinal, toString, valueOf

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.lang.Comparable

compareTo

(continued from last page)

Fields

CTL

```
public static final CTL.Streams.OOStream.Serial CTL
```

ASCII

```
public static final CTL.Streams.OOStream.Serial ASCII
```

Constructors

OOStream.Serial

```
private OOStream.Serial()
```

Methods

values

```
public final static OOStream.Serial[] values()
```

valueOf

```
public static OOStream.Serial valueOf(java.lang.String name)
```

CTL.Streams
Interface OutStream

All Known Implementing Classes:
OOStream

public interface **OutStream**
extends java.io.DataOutput

Interface for CTL output streams

Method Summary

void	__writeArray(java.lang.Object data)
void	serialWrite(java.lang.Object data)
void	writeArray(java.lang.Object data)
void	writeObject(java.lang.Object data)
void	writeString(java.lang.String data)
void	writeWString(java.lang.String data)

Methods inherited from interface `java.io.DataOutput`

`write, write, write, writeBoolean, writeByte, writeBytes, writeChar, writeChars, writeDouble, writeFloat, writeInt, writeLong, writeShort, writeUTF`

Methods

writeString

```
public void writeString(java.lang.String data)
  throws java.io.IOException
```

writeWString

```
public void writeWString(java.lang.String data)
  throws java.io.IOException
```

(continued from last page)

writeArray

```
public void writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

__writeArray

```
public void __writeArray(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

---

writeObject

```
public void writeObject(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

---

serialWrite

```
public void serialWrite(java.lang.Object data)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

CTL.Streams
Class PipedInputDream

```
java.lang.Object
   |
   +-java.io.InputStream
      |
      +-java.io.PipedInputStream
         |
         +-CTL.Streams.PipedInputDream
```

All Implemented Interfaces:
java.io.Closeable

---

public class **PipedInputDream**
extends java.io.PipedInputStream

Hack for PipedInputStream's flaws

Fields inherited from class `java.io.PipedInputStream`
`buffer`, `closedByReader`, `closedByWriter`, `connected`, `in`, `out`, `PIPE_SIZE`, `readSide`, `writeSide`

Fields inherited from class `java.io.InputStream`
`SKIP_BUFFER_SIZE`, `skipBuffer`

Constructor Summary

public	`PipedInputDream(java.io.PipedOutputStream src)`

Method Summary

void	`awaitSpace()`

Methods inherited from class `java.io.PipedInputStream`
`available, awaitSpace, checkStateForReceive, close, connect, read, read, receive, receive, receivedLast`

Methods inherited from class `java.io.InputStream`
`available, close, mark, markSupported, read, read, read, reset, skip`

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `java.io.Closeable`
`close`

Constructors

PipedInputDream

```
public PipedInputDream(java.io.PipedOutputStream src)
```

Methods

awaitSpace

```
protected void awaitSpace()
  throws java.io.IOException
```

Package
CTL.Types

CTL.Types
Class CTLException

```
java.lang.Object
   ┗-java.lang.Throwable
      ┗-java.lang.Exception
         ┗-CTL.Types.CTLException
```

All Implemented Interfaces:
java.io.Serializable

---

public class **CTLException**
extends java.lang.Exception

Internal CTL exception

Field Summary

	`msg` User-defined exception message
`public static final`	`serialVersionUID` Needed for the Exception interface Value: **1337**

Fields inherited from class `java.lang.Exception`

`serialVersionUID`

Fields inherited from class `java.lang.Throwable`

`backtrace`, `cause`, `detailMessage`, `serialVersionUID`, `stackTrace`

Constructor Summary

`public`	`CTLException(java.lang.String msg)` Generate a new CTLException

Method Summary

`java.lang.String`	`getMessage()` Get the user-defined message

Methods inherited from class `java.lang.Throwable`

`fillInStackTrace, getCause, getLocalizedMessage, getMessage, getOurStackTrace, getStackTrace, getStackTraceDepth, getStackTraceElement, initCause, printStackTrace, printStackTrace, printStackTrace, printStackTraceAsCause, printStackTraceAsCause, setStackTrace, toString, writeObject`

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

serialVersionUID

public static final long **serialVersionUID**

Needed for the Exception interface
Constant value: **1337**

msg

java.lang.String **msg**

User-defined exception message

Constructors

CTLException

public **CTLException**(java.lang.String msg)

Generate a new CTLException

Parameters:
msg - User-defined exception message

Methods

getMessage

public java.lang.String **getMessage**()

Get the user-defined message

Returns:
Message

CTL.Types
Class Except

```
java.lang.Object
   |-CTL.Measure
      |-CTL.Types.Except
```

All Implemented Interfaces:
Writable

---

public class **Except**
extends Measure
implements Writable

Serialization of an exception

Field Summary

private	name Name of the exception

Constructor Summary

public	Except() Generate a nameless exception
public	Except(java.lang.String name) Generate an exception with a certain name

Method Summary

java.lang.String	name() Get the name of this exception
void	read(SerialIn in) Read an exception from a stream
java.lang.String	toString() Get a string representation of this object
void	write(SerialOut out) Write an exception to a stream

Methods inherited from class CTL.Measure

size

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

name

```
private java.lang.String name
```

Name of the exception

Constructors

Except

```
public Except()
```

Generate a nameless exception

Except

```
public Except(java.lang.String name)
```

Generate an exception with a certain name

Parameters:
name - Name

Methods

toString

```
public java.lang.String toString()
```

Get a string representation of this object

Returns:
String

name

```
public java.lang.String name()
```

Get the name of this exception

Returns:
Name

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

(continued from last page)

Read an exception from a stream

Parameters:

`in` - Input stream

---

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Write an exception to a stream

Parameters:

`out` - Output stream

CTL.Types
Class FID

```
java.lang.Object
   |-CTL.Measure
      |-CTL.Types.FID
```

All Implemented Interfaces:
Writable

---

public class **FID**
extends Measure
implements Writable

FunctionID

Field Summary

private	ID Numerical ID
private	name Fully-qualified name

Constructor Summary

public	FID(short ID, java.lang.String name) Generate a new FID

Method Summary

java.lang.String	_class() Extract the class name from the fully-qualified name of this function
java.lang.String	_class(java.lang.String suffix) Extract the class name from this FunctionID and use a custom suffix
short	ID() Get the numerical ID
java.lang.String	name() Get the fully-qualified name
void	read(SerialIn in) Read a FunctionID from a stream
java.lang.String	toString() Get a string representation of this object
void	write(SerialOut out) Write this FunctionID to a stream

Methods inherited from class CTL.Measure

size

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Fields

ID

```
private short ID
```

Numerical ID

name

```
private java.lang.String name
```

Fully-qualified name

Constructors

FID

```
public FID(short ID,
           java.lang.String name)
```

Generate a new FID

Parameters:

`ID` - Numerical ID
`name` - Fully-qualified name

Methods

toString

```
public java.lang.String toString()
```

Get a string representation of this object

Returns:

String

ID

```
public short ID()
```

Get the numerical ID

(continued from last page)

Returns:
ID

name

```
public java.lang.String name()
```

Get the fully-qualified name

Returns:
Name

_class

```
public java.lang.String _class()
```

Extract the class name from the fully-qualified name of this function

Returns:
Class name

_class

```
public java.lang.String _class(java.lang.String suffix)
```

Extract the class name from this FunctionID and use a custom suffix

Parameters:
`suffix` - Custom suffix

Returns:
Class name

write

```
public void write(SerialOut out)
  throws java.io.IOException
```

Write this FunctionID to a stream

Parameters:
`out` - Output stream

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException
```

Read a FunctionID from a stream

Parameters:
`in` - Input stream

CTL.Types
Class Graph

```
java.lang.Object
    |
    +-CTL.Types.Graph
```

All Implemented Interfaces:
Writable

---

public class **Graph**
extends java.lang.Object
implements Writable

Unoptimized trivial graph class; show case for CTL.Reference Bandwidth usage: 6n + 18m + 9 n: number of nodes; m: number of edges assumption: each node has at least one edge connected to it Sending data and matrix directly: n^2 + 2n + 12

Field Summary

private	adjM
private	edges
private	nodes

Constructor Summary

public	Graph(int size)

Method Summary

boolean	addEdge(int i, int j)
boolean	addEdge2(int i, int j)
boolean	addNode(Node data)
int	cost(int i, int j)
boolean	equals(java.lang.Object moo)
int	findNode(Node data)
boolean	isEdge(int i, int j)
Node	node(int i)
void	read(SerialIn in)

void	resize(int size)
void	setNode(int i, Node data)
int	size()
java.lang.String	toString()
void	write(SerialOut out)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

nodes

private CTL.Types.Node **nodes**

adjM

private boolean **adjM**

edges

private int **edges**

Constructors

Graph

public **Graph**(int size)

Methods

size

public int **size**()

(continued from last page)

equals

```
public boolean equals(java.lang.Object moo)
```

resize

```
private void resize(int size)
```

addNode

```
public boolean addNode(Node data)
```

findNode

```
public int findNode(Node data)
```

isEdge

```
public boolean isEdge(int i,
         int j)
```

cost

```
public int cost(int i,
         int j)
```

addEdge

```
public boolean addEdge(int i,
         int j)
```

addEdge2

```
public boolean addEdge2(int i,
         int j)
```

setNode

```
public void setNode(int i,
         Node data)
```

(continued from last page)

node

```
public Node node(int i)
```

toString

```
public java.lang.String toString()
```

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

CTL.Types
Class GroupInfo

```
java.lang.Object
   |
   +-CTL.Types.GroupInfo
```

All Implemented Interfaces:
Writable

---

public class **GroupInfo**
extends java.lang.Object
implements Writable

Group information storage

Field Summary

private	objID ObjectID a Group object
private	pid Local Peer ID
private	wantTerm

Constructor Summary

public	GroupInfo(PeerID pid, long objID) Create a new GroupInfo object

Method Summary

IPaddr	host() Retrieve the IP address
long	id() Retrieve the objID
PeerID	pid() Retrieve the PeerID
int	port() Retrieve the port
void	read(SerialIn in) Serial read function
java.lang.String	toString() Retrieve a string representation of this object
void	write(SerialOut out) Serial write function

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Fields

pid

```
private CTL.Types.PeerID pid
```

Local Peer ID

objID

```
private long objID
```

ObjectID a Group object

wantTerm

```
private boolean wantTerm
```

Constructors

GroupInfo

```
public GroupInfo(PeerID pid,
                 long objID)
```

Create a new GroupInfo object

Parameters:

`pid` - PeerID
`objID` - ObjectID

Methods

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:

String

(continued from last page)

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:

`in` - Input stream

---

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Serial write function

Parameters:

`out` - Output stream

---

host

```
public IPaddr host()
```

Retrieve the IP address

Returns:

IPaddr

---

port

```
public int port()
```

Retrieve the port

Returns:

Port

---

pid

```
public PeerID pid()
```

Retrieve the PeerID

Returns:

PeerID

---

id

```
public long id()
```

Retrieve the objID

(continued from last page)

Returns:

ObjectID

CTL.Types
Class Header

```
java.lang.Object
   |-CTL.Measure
      |-CTL.Types.Header
```

All Implemented Interfaces:
Writable

---

public class **Header**
extends Measure
implements Writable

CTL protocol header

Field Summary

private	logID Logical ID
private	needSwap Whether or not swapping is required
private	pid Sender PeerID
private	size Payload size
private	tag Message tag

Constructor Summary

public	Header(long size, int tag, PeerID pid, int logID) Default constructor
public	Header(long size, int tag, IPaddr host, int port, int logID) Constructor with host and port
public	Header(long size, int tag, GroupInfo grp) Constructor which gets the PeerID from a GroupInfo object
public	Header()

Method Summary

long	getSize() Retrieve payload size

boolean	needSwap() Determine if swapping is required
PeerID	pid() Retrieve the PeerID
void	read(SerialIn in) Serial read function
void	setSize(long size) Set payload size
int	tag() Retrieve the message tag
java.lang.String	toString() Retrieve a string representation of this object
void	write(SerialOut out) Serial write function

Methods inherited from class CTL.Measure

size

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

size

```
private long size
```

Payload size

tag

```
private int tag
```

Message tag

pid

```
private CTL.Types.PeerID pid
```

Sender PeerID

(continued from last page)

logID

```
private int logID
```

Logical ID

needSwap

```
private boolean needSwap
```

Whether or not swapping is required

Constructors

Header

```
public Header(long size,
              int tag,
              PeerID pid,
              int logID)
```

Default constructor

Header

```
public Header(long size,
              int tag,
              IPaddr host,
              int port,
              int logID)
```

Constructor with host and port

Header

```
public Header(long size,
              int tag,
              GroupInfo grp)
```

Constructor which gets the PeerID from a GroupInfo object

Header

```
public Header()
```

Methods

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

(continued from last page)

setSize

```
public void setSize(long size)
```

Set payload size

Parameters:
`size` - Payload size

---

getSize

```
public long getSize()
```

Retrieve payload size

Returns:
Payload size

---

pid

```
public PeerID pid()
```

Retrieve the PeerID

Returns:
PeerID

---

tag

```
public int tag()
```

Retrieve the message tag

Returns:
Message tag

---

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.reflect.InvocationTargetException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException
```

Serial read function

Parameters:
`in` - Input stream

---

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Serial write function

(continued from last page)

Parameters:

`out` - Output stream

needSwap

```
public boolean needSwap()
```

Determine if swapping is required

Returns:

True if it is, false otherwise

CTL.Types
Class IPaddr

```
java.lang.Object
    |
    +-CTL.Types.IPaddr
```

All Implemented Interfaces:
Writable

---

public class **IPaddr**
extends java.lang.Object
implements Writable

IP address storage and serialization for IPv4 and IPv6

Field Summary

private	IP 8 x 16 Bit = 128 Bit, which is the length of an IPv6 address

Constructor Summary

public	IPaddr(java.net.InetAddress in) Create an IPaddr from the Java InetAddress type
public	IPaddr(long ip) Create an IPaddr from an 'unsigned int32'
public	IPaddr(java.lang.String str, int i) Create an IPaddr from a hexadecimal string
public	IPaddr(java.lang.String host) Create an IPaddr from a hostname
public	IPaddr() Create an IPaddr for localhost

Method Summary

boolean	equals(java.net.InetAddress ip) Check if two InetAddresses are equal
boolean	equals(IPaddr ip) Check if two IPaddrs are equal
static short[]	getShortArray(java.net.InetAddress ip) Convert an InetAddress to a short array
long	getUint32() Convert this to an integer
static long	getUint32(java.net.InetAddress ip) Convert ip to an integer

short[]	rawIP() Retrieve the raw short array
void	read(SerialIn in) Serial read function
static java.net.InetAddress	setShortArray(short[] ip) Convert a short array to InetAddress
static java.net.InetAddress	setUint32(long ip) Convert an integer to InetAddress
java.net.InetAddress	toInetAddress() Retrieve an InetAddress representation of this object
java.lang.String	toString() Retrieve a string representation of this object
void	write(SerialOut out) Serial write function

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `CTL.Serialize.Writable`

`read, write`

Fields

IP

```
private short IP
```

8 x 16 Bit = 128 Bit, which is the length of an IPv6 address

Constructors

IPaddr

```
public IPaddr(java.net.InetAddress in)
```

Create an IPaddr from the Java InetAddress type

Parameters:

`in` - InetAddress

IPaddr

```
public IPaddr(long ip)
```

Create an IPaddr from an 'unsigned int32'

Parameters:

(continued from last page)

`ip` - IP address

IPaddr

```
public IPaddr(java.lang.String str,
              int i)
```

Create an IPaddr from a hexadecimal string

Parameters:

`str` - Hexadecimal number in a string
`i` - Dummy parameter

IPaddr

```
public IPaddr(java.lang.String host)
```

Create an IPaddr from a hostname

Parameters:

`host` - Hostname

IPaddr

```
public IPaddr()
```

Create an IPaddr for localhost

Methods

rawIP

```
public short[] rawIP()
```

Retrieve the raw short array

Returns:

Array

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:

`in` - Input stream

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

(continued from last page)

Serial write function

Parameters:
`out` - Output stream

---

equals

```
public boolean equals(IPaddr ip)
```

Check if two IPaddrs are equal

Parameters:
`ip` - IPaddr to compare to

Returns:
True if equal, false if not

---

equals

```
public boolean equals(java.net.InetAddress ip)
```

Check if two InetAddresses are equal

Parameters:
`ip` - InetAddress to compare to

Returns:
True if equal, false if not

---

getUint32

```
public long getUint32()
  throws java.net.UnknownHostException
```

Convert this to an integer

Returns:
Integer

---

getUint32

```
public static long getUint32(java.net.InetAddress ip)
```

Convert ip to an integer

Parameters:
`ip` - InetAddress to convert

Returns:
Integer

---

setUint32

```
public static java.net.InetAddress setUint32(long ip)
  throws java.net.UnknownHostException
```

Convert an integer to InetAddress

Parameters:

(continued from last page)

`ip` - Integer

Returns:
InetAddress

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

toInetAddress

```
public java.net.InetAddress toInetAddress()
  throws java.net.UnknownHostException
```

Retrieve an InetAddress representation of this object

Returns:
InetAddress

setShortArray

```
public static java.net.InetAddress setShortArray(short[] ip)
  throws java.net.UnknownHostException
```

Convert a short array to InetAddress

Parameters:
`ip` - Short Array

Returns:
InetAddress

getShortArray

```
public static short[] getShortArray(java.net.InetAddress ip)
```

Convert an InetAddress to a short array

Parameters:
`ip` - InetAddress

Returns:
Short array

CTL.Types
Class Location

```
java.lang.Object
   |
   +-CTL.Types.Location
```

All Implemented Interfaces:
Writable

---

public class **Location**
extends java.lang.Object
implements Writable

Location of a remote CTL service

Field Summary

protected	cmd Command which starts the service
public static final	DMN Value: **8**
public static final	FILE Value: **0**
protected	host Remote host
public static final	HTTP Value: **70**
public static final	LAM Value: **3**
public static final	LIB Value: **7**
protected	linkage Linkage
public static final	MPI Value: **2**
private	pass Password (will be prompted if not specified
protected	path Path to the executable

public static final	PIPE Value: **10**
protected	port Port (22 is default for SSH)
public static final	PVM Value: **4**
public static final	SERIAL Value: **1**
public static final	SSH Value: **9**
public static final	TCP Value: **6**
public static final	THREAD Value: **5**
public static final	UNDEF Value: **63**
public	user Username

Constructor Summary

public	Location(java.lang.String cmd, java.lang.String path, java.lang.String host, int port, java.lang.String user, java.lang.String pass, int linkage) Location constructor
public	Location(java.lang.String cmd, java.lang.String path, java.lang.String host, java.lang.String user, java.lang.String pass, int linkage) Location constructor with default port
public	Location(java.lang.String cmd, java.lang.String path, java.lang.String host, java.lang.String user, java.lang.String pass) Location constructor with default linkage and port
public	Location(java.lang.String cmd, java.lang.String path, java.lang.String host, java.lang.String user, int linkage) Location constructor with default port and password prompt
public	Location(java.lang.String host, int port, int linkage) Location constructor for a service which is already running
public	Location(java.lang.String loc) Location constructor from a string

Method Summary

java.lang.String	cmd() Retrieve command
boolean	hasPassword() Check if a password was given
java.lang.String	host() Retrieve the hostname
boolean	isLocal() Check whether this object refers to a local location
int	linkage() Retrieve linkage
static java.lang.String	linkage2str(int linkage) Convert linkage to string
static java.util.LinkedList	parseFile(java.io.File file) Read a bunch of locations from a file
static java.util.LinkedList	parseFile(java.lang.String fname) Read a bunch of locations from a file
java.lang.String	path() Retrieve path
int	port() Retrieve the port
void	read(SerialIn in) Read from stream
void	setFromString(java.lang.String loc) Set attributes to values extracted from a location string
void	setPassword(com.jcraft.jsch.Session sess) Set the password for an SSHv2 session
java.lang.String	toString() Retrieve a string representation of this object
void	write(SerialOut out) Write to stream

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Fields

(continued from last page)

FILE

```
public static final int FILE
```

Constant value: **0**

SERIAL

```
public static final int SERIAL
```

Constant value: **1**

MPI

```
public static final int MPI
```

Constant value: **2**

LAM

```
public static final int LAM
```

Constant value: **3**

PVM

```
public static final int PVM
```

Constant value: **4**

THREAD

```
public static final int THREAD
```

Constant value: **5**

TCP

```
public static final int TCP
```

Constant value: **6**

LIB

```
public static final int LIB
```

Constant value: **7**

(continued from last page)

DMN

`public static final int DMN`

Constant value: **8**

SSH

`public static final int SSH`

Constant value: **9**

PIPE

`public static final int PIPE`

Constant value: **10**

UNDEF

`public static final int UNDEF`

Constant value: **63**

HTTP

`public static final int HTTP`

Constant value: **70**

cmd

`protected java.lang.String cmd`

Command which starts the service

path

`protected java.lang.String path`

Path to the executable

host

`protected java.lang.String host`

Remote host

port

`protected int port`

Port (22 is default for SSH)

user

```
public java.lang.String user
```

Username

pass

```
private java.lang.String pass
```

Password (will be prompted if not specified

linkage

```
protected int linkage
```

Linkage

Constructors

Location

```
public Location(java.lang.String cmd,
                java.lang.String path,
                java.lang.String host,
                int port,
                java.lang.String user,
                java.lang.String pass,
                int linkage)
```

Location constructor

Location

```
public Location(java.lang.String cmd,
                java.lang.String path,
                java.lang.String host,
                java.lang.String user,
                java.lang.String pass,
                int linkage)
```

Location constructor with default port

Location

```
public Location(java.lang.String cmd,
                java.lang.String path,
                java.lang.String host,
                java.lang.String user,
                java.lang.String pass)
```

Location constructor with default linkage and port

Location

```
public Location(java.lang.String cmd,
                java.lang.String path,
                java.lang.String host,
                java.lang.String user,
                int linkage)
```

(continued from last page)

Location constructor with default port and password prompt

Location

```
public Location(java.lang.String host,
                int port,
                int linkage)
```

Location constructor for a service which is already running

Location

```
public Location(java.lang.String loc)
```

Location constructor from a string

Parameters:
`loc` - String

Methods

linkage

```
public int linkage()
```

Retrieve linkage

Returns:
Linkage

linkage2str

```
public static java.lang.String linkage2str(int linkage)
```

Convert linkage to string

Parameters:
`linkage` - Linkage

Returns:
String

cmd

```
public java.lang.String cmd()
```

Retrieve command

Returns:
Command

path

```
public java.lang.String path()
```

Retrieve path

Returns:

(continued from last page)

Path

hasPassword

```
public boolean hasPassword()
```

Check if a password was given

Returns:
True if yes, false otherwise.

setPassword

```
public void setPassword(com.jcraft.jsch.Session sess)
```

Set the password for an SSHv2 session

Parameters:
`sess` - Session

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Read from stream

Parameters:
`in` - Stream to read from

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Write to stream

Parameters:
`out` - Stream to write to

isLocal

```
public boolean isLocal()
```

Check whether this object refers to a local location

Returns:
True if it does, false otherwise

setFromString

```
public void setFromString(java.lang.String loc)
```

Set attributes to values extracted from a location string

(continued from last page)

Parameters:
`loc` - Location string

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

host

```
public java.lang.String host()
```

Retrieve the hostname

Returns:
Hostname

port

```
public int port()
```

Retrieve the port

Returns:
Port

parseFile

```
public static java.util.LinkedList parseFile(java.lang.String fname)
```

Read a bunch of locations from a file

Parameters:
`fname` - Filename

Returns:
Array of locations

parseFile

```
public static java.util.LinkedList parseFile(java.io.File file)
  throws java.io.IOException
```

Read a bunch of locations from a file

Parameters:
`file` - File

Returns:
Array of locations

CTL.Types
Class Node

```
java.lang.Object
   |-CTL.Types.Tupel
      |-CTL.Types.Node
```

All Implemented Interfaces:
TemplHack, Writable

---

public class **Node**
extends Tupel

Element of CTL graph

Field Summary

private static	types Type parameters of the underlying Tupel

Fields inherited from class CTL.Types.Tupel

data, type

Constructor Summary

public	Node(java.lang.String name, int cost) Generate a new Node

Method Summary

int	cost() Retrieve the cost of this Node
java.lang.String	name() Retrieve the name of this Node
void	read(OIStream in) Serial read function
void	setTypes(TypeTree[] t) This method just sets the statically defined 'types' array to this objects 'type' attribute, as defined in Tupel.
java.lang.String	toString() Retrieve a String representation of this object

Methods inherited from class CTL.Types.Tupel

equals, insert, item, length, read, setItem, setTypes, toString, type, write

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Methods inherited from interface ReflWrap.TemplHack
setTypes

Fields

types

```
private static ReflWrap.TypeTree types
```

Type parameters of the underlying Tupel

Constructors

Node

```
public Node(java.lang.String name,
            int cost)
```

Generate a new Node

Parameters:

`name` - Name
`cost` - Cost to reach this node

Methods

setTypes

```
public void setTypes(TypeTree[] t)
```

This method just sets the statically defined 'types' array to this objects 'type' attribute, as defined in Tupel.

Parameters:

`t` - Dummy argument to satify the TemplHack interface used by Tupel.

name

```
public java.lang.String name()
```

Retrieve the name of this Node

Returns:

String

(continued from last page)

cost

```
public int cost()
```

Retrieve the cost of this Node

Returns:
Cost

---

toString

```
public java.lang.String toString()
```

Retrieve a String representation of this object

Returns:
String

---

read

```
public void read(OIStream in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:
`in` - Input stream

CTL.Types
Class PeerID

```
java.lang.Object
   |
   +-CTL.Types.PeerID
```

All Implemented Interfaces:
Writable

---

public class **PeerID**
extends java.lang.Object
implements Writable

ID of a remote peer

Field Summary

private	host IP address
private	port Port

Constructor Summary

public	PeerID(IPaddr host, int port) Generate a new PeerID
public	PeerID(java.lang.String host, int port)

Method Summary

IPaddr	host() Retrieve the IP address of the peer
int	port() Retrieve the port of the peer
void	read(SerialIn in) Serial read function
void	setHost(IPaddr host) Set the IP address
void	setPort(int port) Set the port
int	size() Determine the size of this type
java.lang.String	toString() Retrieve a string representation of this object

void	write(SerialOut out) Serial read function

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

host

```
private CTL.Types.IPaddr host
```

IP address

port

```
private int port
```

Port

Constructors

PeerID

```
public PeerID(IPaddr host,
              int port)
```

Generate a new PeerID

Parameters:

host - Host
port - Port

PeerID

```
public PeerID(java.lang.String host,
              int port)
```

Methods

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:

String

host

```
public IPaddr host()
```

Retrieve the IP address of the peer

Returns:
IP address

port

```
public int port()
```

Retrieve the port of the peer

Returns:
Port

setHost

```
public void setHost(IPaddr host)
```

Set the IP address

Parameters:
`host` - IP address

setPort

```
public void setPort(int port)
```

Set the port

Parameters:
`port` - Port

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:
`in` - Input stream

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Serial read function

(continued from last page)

Parameters:
`out` - Output stream

size

```
public int size()
```

Determine the size of this type

Returns:
Size (in bytes)

CTL.Types
Class Reference

```
java.lang.Object
   |
   +-CTL.Types.Reference
```

All Implemented Interfaces:
TemplHack, Writable

---

public class **Reference**
extends java.lang.Object
implements Writable, TemplHack

Implementation of ctl::reference in Java

Field Summary

private	first
private static	map
private	type
private	typeID

Constructor Summary

public	Reference(java.lang.Object obj)

Method Summary

static void	cleanup()
static void	debug()
boolean	equals(java.lang.Object moo)
boolean	first()
java.lang.Object	obj()
void	read(SerialIn in)
void	setTypes(TypeTree[] types)
java.lang.String	toString()

long	typeID()
static int	unique()
void	write(SerialOut out)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Methods inherited from interface ReflWrap.TemplHack

setTypes

Fields

map

```
private static CTL.ObjectMap map
```

first

```
private boolean first
```

typeID

```
private long typeID
```

type

```
private ReflWrap.TypeTree type
```

Constructors

Reference

```
public Reference(java.lang.Object obj)
```

Methods

(continued from last page)

setTypes

```
public void setTypes(TypeTree[] types)
```

first

```
public boolean first()
```

equals

```
public boolean equals(java.lang.Object moo)
```

toString

```
public java.lang.String toString()
```

cleanup

```
public static void cleanup()
```

debug

```
public static void debug()
```

typeID

```
public long typeID()
```

obj

```
public java.lang.Object obj()
```

unique

```
public static int unique()
```

(continued from last page)

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

CTL.Types
Class rPointer

```
java.lang.Object
   |-CTL.Measure
      |-CTL.Types.rPointer
```

All Implemented Interfaces:
Writable

---

public class **rPointer**
extends Measure
implements Writable

Remote pointer

Field Summary

private	objID ObjectID
private	pid Remote PeerID
private	refC Reference count

Constructor Summary

public	rPointer(PeerID pid, long objID) Generate a new rPointer
public	rPointer(long objID, GroupInfo info) Generate a new rPointer for an object stored on localhost

Method Summary

boolean	equals(java.lang.Object foo) Checks if two objects are equal
long	objID() Retrieve the stored objID
PeerID	peerID() Retrieve the stored PeerID
void	read(SerialIn in) Serial read function
void	setObjID(long objID) Set a new ObjectID

java.lang.String	toString() Retrieve a String representation of this object
void	write(SerialOut out) Serial write function

Methods inherited from class CTL.Measure

size

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

pid

```
private CTL.Types.PeerID pid
```

Remote PeerID

objID

```
private long objID
```

ObjectID

refC

```
private int refC
```

Reference count

Constructors

rPointer

```
public rPointer(PeerID pid,
                long objID)
```

Generate a new rPointer

Parameters:

`pid` - Remote pid
`objID` - ObjectID

(continued from last page)

rPointer

```
public rPointer(long objID,
                GroupInfo info)
```

Generate a new rPointer for an object stored on localhost

Parameters:
`objID` - ObjectID
`info` - Group information object

Methods

equals

```
public boolean equals(java.lang.Object foo)
```

Checks if two objects are equal

Parameters:
`foo` - Object to compare to

Returns:
True if equal, false otherwise

---

toString

```
public java.lang.String toString()
```

Retrieve a String representation of this object

Returns:
String

---

objID

```
public long objID()
```

Retrieve the stored objID

Returns:
ObjectID

---

setObjID

```
public void setObjID(long objID)
```

Set a new ObjectID

Parameters:
`objID` - ObjectID

---

peerID

```
public PeerID peerID()
```

Retrieve the stored PeerID

(continued from last page)

Returns:

PeerID

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:

`in` - Input stream

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Serial write function

Parameters:

`out` - Output stream

CTL.Types
Class Sibling

```
java.lang.Object
   |-CTL.Types.Tupel
      |-CTL.Types.Sibling
```

All Implemented Interfaces:
TemplHack, TemplHack, Writable

---

public class **Sibling**
extends Tupel
implements Writable, TemplHack, TemplHack

An element of the CTL tree

Fields inherited from class CTL.Types.Tupel
data, type

Constructor Summary

public	Sibling(java.lang.Object data) Generate a new Sibling

Method Summary

boolean	append(java.lang.Object data) Append a new Sibling to the subtree
boolean	append(Sibling sibl) Append a new Sibling to the subtree
java.lang.Object	data() Retrieve the data associated to this Sibling
void	read(OIStream in) Serial read function
Sibling	search(java.lang.Object data) Search for a certain Sibling in the sub tree of this node
void	setTypes(TypeTree[] types) Template hack implementation
java.lang.String	toString() Retrieve a String representation of this object

Methods inherited from class CTL.Types.Tupel
equals, insert, item, length, read, setItem, setTypes, toString, type, write

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Methods inherited from interface ReflWrap.TemplHack
setTypes

Methods inherited from interface ReflWrap.TemplHack
setTypes

Constructors

Sibling

```
public Sibling(java.lang.Object data)
```

Generate a new Sibling

Parameters:
`data` - Data which this object should store

Methods

setTypes

```
public void setTypes(TypeTree[] types)
```

Template hack implementation

Parameters:
`types` - Type parameters

search

```
public Sibling search(java.lang.Object data)
  throws CTLException
```

Search for a certain Sibling in the sub tree of this node

Parameters:
`data` - Data to search for

Returns:
Node which holds the data or null if none found

append

```
public boolean append(java.lang.Object data)
  throws CTLException,
         java.lang.ClassNotFoundException
```

(continued from last page)

Append a new Sibling to the subtree

Parameters:
`data` - Data to store

Returns:
Whether or not the new Sibling was succesfully appended

append

```
public boolean append(Sibling sibl)
  throws CTLException
```

Append a new Sibling to the subtree

Parameters:
`sibl` - Sibling to append

Returns:
Whether or not the new Sibling was succesfully appended

data

```
public java.lang.Object data()
  throws CTLException
```

Retrieve the data associated to this Sibling

Returns:
Data

toString

```
public java.lang.String toString()
```

Retrieve a String representation of this object

Returns:
String

read

```
public void read(OIStream in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:
`in` - Input stream

CTL.Types
Class Status

```
java.lang.Object
   ┗-CTL.Types.Status
```

public class **Status**
extends java.lang.Object

A CTL-specific type which holds the status of an operation

Constructor Summary

public	Status()

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Status

`public` **`Status`**`()`

CTL.Types
Class Tree

```
java.lang.Object
   |
   +-CTL.Types.Tree
```

All Implemented Interfaces:
TemplHack, Writable

---

public class **Tree**
extends java.lang.Object
implements Writable, TemplHack

CTL implementation of a simple tree

Field Summary

private	root Root node of the tree
private	type Type parameter for the data the siblings store

Constructor Summary

public	Tree(java.lang.Object data) Generate a new Tree

Method Summary

boolean	equals(java.lang.Object moo) Check if this object is equal to another one
void	read(SerialIn in) Serial read function
Sibling	root() Retrieve this tree's root node
void	setTypes(TypeTree[] types) Template hack implementation
Sibling	sibl(java.lang.Object data) Search for a certain node
java.lang.String	toString() Retrieve a string representation of this object
void	write(SerialOut out) Serial write function

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Methods inherited from interface ReflWrap.TemplHack
setTypes

Fields

root

`private CTL.Types.Sibling root`

Root node of the tree

type

`private ReflWrap.TypeTree type`

Type parameter for the data the siblings store

Constructors

Tree

`public Tree(java.lang.Object data)`

Generate a new Tree

Parameters:
`data` - Data associated to the root node

Methods

setTypes

`public void setTypes(TypeTree[] types)`

Template hack implementation

Parameters:
`types` - Type parameters

root

`public Sibling root()`

Retrieve this tree's root node

Returns:
Root node

sibl

```
public Sibling sibl(java.lang.Object data)
  throws CTLException
```

Search for a certain node

Parameters:
`data` - Data to search for

Returns:
Node which holds the data or null if none found

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

equals

```
public boolean equals(java.lang.Object moo)
```

Check if this object is equal to another one

Parameters:
`moo` - Object to compare to

Returns:
True if equals, false if not

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:
`in` - Input stream

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Serial write function

Parameters:

(continued from last page)

`out` - Output stream

CTL.Types
Class Tupel

```
java.lang.Object
   |
   +-CTL.Types.Tupel
```

All Implemented Interfaces:
TemplHack, Writable

Direct Known Subclasses:
Sibling, Node

---

public class **Tupel**
extends java.lang.Object
implements Writable, TemplHack

CTL Tupel (a fixed-sized array of multiple types)

Field Summary

protected	data Stored data
protected	type Type paramenters

Constructor Summary

protected	Tupel() Dummy constructor to make subclasses happy
public	Tupel(java.lang.Class[] type) Generate a new Tupel
public	Tupel(TypeTree[] tree) Constructor from TypeTree

Method Summary

boolean	equals(java.lang.Object t) Check if two objects are equal
static java.lang.Class[]	insert(java.lang.Class[] array, int idx, java.lang.Class moo) Array helper function
java.lang.Object	item(int i) Retrieve the value of a specific element
int	length() Retrieve the number of elements this Tupel can store
void	read(SerialIn in) Serial read function

void	`setItem(int i, java.lang.Object data)` Set the value of a specific element
void	`setTypes(TypeTree[] types)` Set the type parameters
java.lang.String	`toString()` Retrieve a string representation of this object
java.lang.Class	`type(int i)` Retrieve the type of a specific element
void	`write(SerialOut out)` Serial write function

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `CTL.Serialize.Writable`

`read, write`

Methods inherited from interface `ReflWrap.TemplHack`

`setTypes`

Fields

type

`protected ReflWrap.TypeTree type`

Type paramenters

data

`protected java.lang.Object data`

Stored data

Constructors

Tupel

`protected Tupel()`

Dummy constructor to make subclasses happy

Tupel

`public Tupel(java.lang.Class[] type)`

Generate a new Tupel

(continued from last page)

Parameters:
`type` - Type parameters

Tupel

```
public Tupel(TypeTree[] tree)
```

Constructor from TypeTree

Methods

insert

```
protected static java.lang.Class[] insert(java.lang.Class[] array,
          int idx,
          java.lang.Class moo)
```

Array helper function

Parameters:
`array` - Array of classes
`idx` - Index number
`moo` - New value

Returns:
Array of classes with the specified value replaced

setTypes

```
public void setTypes(TypeTree[] types)
```

Set the type parameters

Parameters:
`types` - Array of classes

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:
String

length

```
public int length()
```

Retrieve the number of elements this Tupel can store

Returns:
Number of elements

type

```
public java.lang.Class type(int i)
  throws CTLException
```

(continued from last page)

Retrieve the type of a specific element

Parameters:
`i` - Index number

Returns:
Type of the element

item

```
public java.lang.Object item(int i)
  throws CTLException
```

Retrieve the value of a specific element

Parameters:
`i` - Index number

Returns:
Value of the element

setItem

```
public void setItem(int i,
         java.lang.Object data)
  throws CTLException
```

Set the value of a specific element

Parameters:
`i` - Index number
`data` - New value

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial read function

Parameters:
`in` - Input stream

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

Serial write function

Parameters:
`out` - Output stream

(continued from last page)

equals

```
public boolean equals(java.lang.Object t)
```

Check if two objects are equal

Parameters:

`t` - Object to compare to

Returns:

True if equal, false otherwise

Package

Debug

Debug
Class DummyDebugger

```
java.lang.Object
   |
   +-Debug.DummyDebugger
```

public class **DummyDebugger**
extends java.lang.Object

Very basic structure of a CTL debugger

Nested Class Summary

class	DummyDebugger.Handler DummyDebugger.Handler
class	DummyDebugger.ManualContinue DummyDebugger.ManualContinue
class	DummyDebugger.Sink DummyDebugger.Sink

Field Summary

private static final	manual Value: **false**
private static	recv

Constructor Summary

public	DummyDebugger()

Method Summary

static void	main(java.lang.String[] a)
static void	sendContinuous(DummyDebugger.Sink sink, java.net.Socket sock)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

(continued from last page)

manual

```
private static final boolean manual
```

Constant value: **false**

---

recv

```
private static int recv
```

Constructors

DummyDebugger

```
public DummyDebugger()
```

Methods

main

```
public static void main(java.lang.String[] a)
```

---

sendContinuous

```
private static void sendContinuous(DummyDebugger.Sink sink,
        java.net.Socket sock)
```

Debug
Class DummyDebugger.ManualContinue

```
java.lang.Object
   |
   +-java.lang.Thread
      |
      +-Debug.DummyDebugger.ManualContinue
```

All Implemented Interfaces:
java.lang.Runnable

---

private static class **DummyDebugger.ManualContinue**
extends java.lang.Thread

Field Summary

private	sink

Fields inherited from class java.lang.Thread

blocker, blockerLock, contextClassLoader, daemon, defaultUncaughtExceptionHandler, eetop, EMPTY_STACK_TRACE, group, inheritableThreadLocals, inheritedAccessControlContext, MAX_PRIORITY, MIN_PRIORITY, name, NORM_PRIORITY, priority, single_step, stackSize, started, stillborn, SUBCLASS_IMPLEMENTATION_PERMISSION, subclassAudits, target, threadInitNumber, threadLocals, threadQ, threadSeqNumber, threadStatus, tid, uncaughtExceptionHandler

Constructor Summary

public	DummyDebugger.ManualContinue(DummyDebugger.Sink s)

Method Summary

void	run()

Methods inherited from class java.lang.Thread

activeCount, auditSubclass, blockedOn, checkAccess, countStackFrames, currentThread, destroy, dispatchUncaughtException, dumpStack, dumpThreads, enumerate, exit, getAllStackTraces, getContextClassLoader, getDefaultUncaughtExceptionHandler, getId, getName, getPriority, getStackTrace, getState, getThreadGroup, getThreads, getUncaughtExceptionHandler, holdsLock, init, interrupt, interrupt0, interrupted, isAlive, isCCLOverridden, isDaemon, isInterrupted, isInterrupted, join, join, join, nextThreadID, nextThreadNum, registerNatives, resume, resume0, run, setContextClassLoader, setDaemon, setDefaultUncaughtExceptionHandler, setName, setPriority, setPriority0, setUncaughtExceptionHandler, sleep, sleep, start, start0, stop, stop, stop0, suspend, suspend0, toString, yield

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `java.lang.Runnable`
`run`

Fields

sink

`private Debug.DummyDebugger.Sink` **`sink`**

Constructors

DummyDebugger.ManualContinue

`public` **`DummyDebugger.ManualContinue`**`(DummyDebugger.Sink s)`

Methods

run

`public void` **`run`**`()`

Debug
Class DummyDebugger.Sink

```
java.lang.Object
   |
   +-java.lang.Thread
         |
         +-Debug.DummyDebugger.Sink
```

All Implemented Interfaces:
java.lang.Runnable

---

private static class **DummyDebugger.Sink**
extends java.lang.Thread

Field Summary

private	dudes
private	port
private	ssock

Fields inherited from class `java.lang.Thread`

`blocker`, `blockerLock`, `contextClassLoader`, `daemon`, `defaultUncaughtExceptionHandler`, `eetop`, `EMPTY_STACK_TRACE`, `group`, `inheritableThreadLocals`, `inheritedAccessControlContext`, `MAX_PRIORITY`, `MIN_PRIORITY`, `name`, `NORM_PRIORITY`, `priority`, `single_step`, `stackSize`, `started`, `stillborn`, `SUBCLASS_IMPLEMENTATION_PERMISSION`, `subclassAudits`, `target`, `threadInitNumber`, `threadLocals`, `threadQ`, `threadSeqNumber`, `threadStatus`, `tid`, `uncaughtExceptionHandler`

Constructor Summary

public	DummyDebugger.Sink()

Method Summary

java.util.LinkedList	getDudes()
PeerID	getPID()
int	getPort()
void	run()

Methods inherited from class `java.lang.Thread`

activeCount, auditSubclass, blockedOn, checkAccess, countStackFrames, currentThread, destroy, dispatchUncaughtException, dumpStack, dumpThreads, enumerate, exit, getAllStackTraces, getContextClassLoader, getDefaultUncaughtExceptionHandler, getId, getName, getPriority, getStackTrace, getState, getThreadGroup, getThreads, getUncaughtExceptionHandler, holdsLock, init, interrupt, interrupt0, interrupted, isAlive, isCCLOverridden, isDaemon, isInterrupted, isInterrupted, join, join, join, nextThreadID, nextThreadNum, registerNatives, resume, resume0, run, setContextClassLoader, setDaemon, setDefaultUncaughtExceptionHandler, setName, setPriority, setPriority0, setUncaughtExceptionHandler, sleep, sleep, start, start0, stop, stop, stop0, suspend, suspend0, toString, yield

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `java.lang.Runnable`

run

Fields

port

```
private int port
```

ssock

```
private java.net.ServerSocket ssock
```

dudes

```
private java.util.LinkedList dudes
```

Constructors

DummyDebugger.Sink

```
public DummyDebugger.Sink()
```

Methods

run

```
public void run()
```

getPort

```
public int getPort()
```

getPID

```
public PeerID getPID()
  throws java.net.UnknownHostException
```

getDudes

```
public java.util.LinkedList getDudes()
```

Debug
Class DummyDebugger.Handler

```
java.lang.Object
   |
   +-java.lang.Thread
      |
      +-Debug.DummyDebugger.Handler
```

All Implemented Interfaces:
java.lang.Runnable

---

private static class **DummyDebugger.Handler**
extends java.lang.Thread

This is where it gets interesting. The Handler class should pass the data it received to the remote object dummies. Most of that can be copied from the CTL4j. The other extension point is the CodeGen package, which needs a generator for the logging CIs. On top of that, there's a GUI which visualizes the connections between remote objects and their current state, as well as all the method calls. For this, DotClass can be a starting point, it shows how to easily get information about Java classes.

Field Summary

private	id
private	sink
private	sock

Fields inherited from class `java.lang.Thread`

`blocker`, `blockerLock`, `contextClassLoader`, `daemon`, `defaultUncaughtExceptionHandler`, `eetop`, `EMPTY_STACK_TRACE`, `group`, `inheritableThreadLocals`, `inheritedAccessControlContext`, `MAX_PRIORITY`, `MIN_PRIORITY`, `name`, `NORM_PRIORITY`, `priority`, `single_step`, `stackSize`, `started`, `stillborn`, `SUBCLASS_IMPLEMENTATION_PERMISSION`, `subclassAudits`, `target`, `threadInitNumber`, `threadLocals`, `threadQ`, `threadSeqNumber`, `threadStatus`, `tid`, `uncaughtExceptionHandler`

Constructor Summary

public	DummyDebugger.Handler(java.net.Socket sock, int id, DummyDebugger.Sink sink)

Method Summary

void	run()

Methods inherited from class `java.lang.Thread`

activeCount, auditSubclass, blockedOn, checkAccess, countStackFrames, currentThread, destroy, dispatchUncaughtException, dumpStack, dumpThreads, enumerate, exit, getAllStackTraces, getContextClassLoader, getDefaultUncaughtExceptionHandler, getId, getName, getPriority, getStackTrace, getState, getThreadGroup, getThreads, getUncaughtExceptionHandler, holdsLock, init, interrupt, interrupt0, interrupted, isAlive, isCCLOverridden, isDaemon, isInterrupted, isInterrupted, join, join, join, nextThreadID, nextThreadNum, registerNatives, resume, resume0, run, setContextClassLoader, setDaemon, setDefaultUncaughtExceptionHandler, setName, setPriority, setPriority0, setUncaughtExceptionHandler, sleep, sleep, start, start0, stop, stop, stop0, suspend, suspend0, toString, yield

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `java.lang.Runnable`

run

Fields

id

```
private int id
```

sink

```
private Debug.DummyDebugger.Sink sink
```

sock

```
private java.net.Socket sock
```

Constructors

DummyDebugger.Handler

```
public DummyDebugger.Handler(java.net.Socket sock,
                             int id,
                             DummyDebugger.Sink sink)
```

Methods

run

```
public void run()
```

(continued from last page)

Package
DotClass

DotClass
Class ClassList

```
java.lang.Object
   |
   +-DotClass.ClassList
```

public class **ClassList**
extends java.lang.Object

List of classes

Field Summary

private	list Underlying LinkedList

Constructor Summary

public	ClassList() Generate a new ClassList

Method Summary

java.lang.String	add(ClassInfo cinfo) Add a class to the list
java.lang.String	find(java.lang.String name, boolean isDotName) Search for a certain class
java.util.ListIterator	iter() Retrieve the Iterator for the underlying list

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

list

```
private java.util.LinkedList list
```

Underlying LinkedList

Constructors

ClassList

```
public ClassList()
```

(continued from last page)

Generate a new ClassList

Methods

add

```
public java.lang.String add(ClassInfo cinfo)
```

Add a class to the list

Parameters:

`cinfo` - Class information

Returns:

Name of the added entry

---

find

```
public java.lang.String find(java.lang.String name,
         boolean isDotName)
```

Search for a certain class

Parameters:

`name` - String to search for

`isDotName` - Whether the string is normalized

Returns:

name if found, null otherwise

---

iter

```
public java.util.ListIterator iter()
```

Retrieve the Iterator for the underlying list

Returns:

Iterator

DotClass
Class ClassListEntry

```
java.lang.Object
   |
   +-DotClass.ClassListEntry
```

public class **ClassListEntry**
extends java.lang.Object

Entry in a ClassList, storing information about a Class

Field Summary

private	cinfo Underlying ClassInfo object
private	dot_name Normalized name as returned by genDotName()
private	ifaces Names of the interfaces
private	name Name of the class
private	sclass Name of the superclass

Constructor Summary

public	ClassListEntry(ClassInfo cinfo) Generate a new ClassListEntry

Method Summary

java.lang.String	dot_name() Retrieve the normalized name of this class
java.lang.String	genDotName() Generate a normalized name
boolean	isIFace() Check whether or not this class is an interface
java.lang.String	name() Retrieve the name of this class
int	numIFaces() Retrieve the number of interfaces
java.lang.String	printIFace(int i) Print one interface

java.lang.String	printIFaces() Pretty printer for the interfaces this class implements
void	resolve(ClassList list) Resolve this symbol
java.lang.String	sclass() Retrieve the superclass
java.lang.String	toString() Retrieve a string representation of this object

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

cinfo

private ReflWrap.ClassInfo **cinfo**

Underlying ClassInfo object

name

private java.lang.String **name**

Name of the class

dot_name

private java.lang.String **dot_name**

Normalized name as returned by genDotName()

sclass

private java.lang.String **sclass**

Name of the superclass

ifaces

private java.lang.String **ifaces**

Names of the interfaces

Constructors

ClassListEntry

public **ClassListEntry**(ClassInfo cinfo)

Generate a new ClassListEntry

(continued from last page)

Parameters:
`cinfo` - Class information

Methods

name

`public java.lang.String name()`

Retrieve the name of this class

Returns:
String

dot_name

`public java.lang.String dot_name()`

Retrieve the normalized name of this class

Returns:
String

genDotName

`private java.lang.String genDotName()`

Generate a normalized name

Returns:
String

toString

`public java.lang.String toString()`

Retrieve a string representation of this object

Returns:
String

printIFaces

`public java.lang.String printIFaces()`

Pretty printer for the interfaces this class implements

Returns:
String

isIFace

`public boolean isIFace()`

Check whether or not this class is an interface

Returns:

(continued from last page)

True if this class is an interface, false otherwise

printIFace

```
public java.lang.String printIFace(int i)
```

Print one interface

Parameters:
`i` - Index number

Returns:
String

numIFaces

```
public int numIFaces()
```

Retrieve the number of interfaces

Returns:
Number of interfaces this class implements

sclass

```
public java.lang.String sclass()
```

Retrieve the superclass

Returns:
String

resolve

```
public void resolve(ClassList list)
```

Resolve this symbol

Parameters:
`list` - List of classes

DotClass
Class DefaultStyle

```
java.lang.Object
   |-DotClass.Style
      |-DotClass.DefaultStyle
```

public class **DefaultStyle**
extends Style

Default style

Constructor Summary

public	DefaultStyle()

Method Summary

static java.lang.String	copyleft()
static java.lang.String	declareClass(ClassListEntry entry)
static java.lang.String	declareIFace(ClassListEntry entry)
static java.lang.String	iface(java.lang.String iface, java.lang.String member)
static java.lang.String	implement(java.lang.String sclass, java.lang.String cclass)

Methods inherited from class DotClass.Style

copyleft, declareClass, declareIFace, iface, implement

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

DefaultStyle

public **DefaultStyle**()

Methods

(continued from last page)

declareClass

```
public static java.lang.String declareClass(ClassListEntry entry)
```

declareIFace

```
public static java.lang.String declareIFace(ClassListEntry entry)
```

iface

```
public static java.lang.String iface(java.lang.String iface,
         java.lang.String member)
```

implement

```
public static java.lang.String implement(java.lang.String sclass,
         java.lang.String cclass)
```

copyleft

```
public static java.lang.String copyleft()
```

DotClass
Class Main

```
java.lang.Object
   ┗-DotClass.Main
```

public class **Main**
extends java.lang.Object

DotClass - generate class diagramms from source code

Constructor Summary

public	Main()

Method Summary

static void	main(java.lang.String[] args)
static void	resolveSymbol(ClassList list, java.lang.Class klasse) Resolve a symbol

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Main

```
public Main()
```

Methods

resolveSymbol

```
public static void resolveSymbol(ClassList list,
        java.lang.Class klasse)
```

Resolve a symbol

Parameters:

`list` - List of classes
`klasse` - Class

(continued from last page)

main

```
public static void main(java.lang.String[] args)
```

DotClass
Class Style

```
java.lang.Object
   |
   +-DotClass.Style
```

Direct Known Subclasses:
DefaultStyle

---

abstract class **Style**
extends java.lang.Object

Abstract output style interface

Constructor Summary

	`Style()`

Method Summary

static java.lang.String	`copyleft()` Look of copyright message
static java.lang.String	`declareClass(ClassListEntry entry)` Look of classes
static java.lang.String	`declareIFace(ClassListEntry entry)` Look of interfaces
static java.lang.String	`iface(java.lang.String iface, java.lang.String member)` Look of interface edges
static java.lang.String	`implement(java.lang.String sclass, java.lang.String cclass)` Look of superclass edges

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Style

`Style()`

Methods

(continued from last page)

declareClass

```
public static java.lang.String declareClass(ClassListEntry entry)
```

Look of classes

Parameters:
`entry` - Class information

Returns:
Prettyfied string

---

declareIFace

```
public static java.lang.String declareIFace(ClassListEntry entry)
```

Look of interfaces

Parameters:
`entry` - Class information

Returns:
Prettyfied string

---

iface

```
public static java.lang.String iface(java.lang.String iface,
         java.lang.String member)
```

Look of interface edges

Parameters:
`iface` - Interface
`member` - Member

Returns:
Prettyfied string

---

implement

```
public static java.lang.String implement(java.lang.String sclass,
         java.lang.String cclass)
```

Look of superclass edges

Parameters:
`sclass` - Superclass
`cclass` - Childclass

Returns:
Prettyfied string

---

copyleft

```
public static java.lang.String copyleft()
```

Look of copyright message

(continued from last page)

Returns:

Prettyfied string

Package
Example

Example
Class Client1

```
java.lang.Object
   |
   +-Example.Client1
```

public class **Client1**
extends java.lang.Object

Sample client which tests most of the implemented features

Constructor Summary

public	Client1()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client1

`public` **`Client1`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client10

```
java.lang.Object
   |
   +-Example.Client10
```

public class **Client10**
extends java.lang.Object

Sample client

Field Summary

private static final	useCC Value: **false**

Constructor Summary

public	Client10()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

useCC

```
private static final boolean useCC
```

Constant value: **false**

Constructors

Client10

```
public Client10()
```

Methods

(continued from last page)

main

```
public static void main(java.lang.String[] args)
```

Example
Class Client11

```
java.lang.Object
   |
   +-Example.Client11
```

public class **Client11**
extends java.lang.Object

Sample client

Constructor Summary

public	Client11()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client11

`public` **`Client11`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client12

```
java.lang.Object
   ┗-Example.Client12
```

public class **Client12**
extends java.lang.Object

Sample client

Constructor Summary

public	Client12()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client12

`public` **`Client12`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client13

```
java.lang.Object
   |
   +-Example.Client13
```

public class **Client13**
extends java.lang.Object

This client demonstrates parallel execution of methods using multiple processes, which can live on different physical machines, of course.

Constructor Summary

public	Client13()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Client13

public **Client13**()

Methods

main

public static void **main**(java.lang.String[] args)

Example
Class Client14

```
java.lang.Object
   |
   +-Example.Client14
```

public class **Client14**
extends java.lang.Object

This client demonstrates using parallel execution for the real world problem of calculating Pi.

Field Summary

public static	iterations
private static final	no_rr Value: **false**
public static	step

Constructor Summary

public	Client14()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

no_rr

```
private static final boolean no_rr
```

Constant value: **false**

iterations

```
public static int iterations
```

step

```
public static int step
```

Constructors

Client14

```
public Client14()
```

Methods

main

```
public static void main(java.lang.String[] args)
```

Example
Class Client15

```
java.lang.Object
   ┗-Example.Client15
```

public class **Client15**
extends java.lang.Object

Example for calling a .NET component

Constructor Summary

public	Client15()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client15

`public` **`Client15`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client2

```
java.lang.Object
   |
   +-Example.Client2
```

public class **Client2**
extends java.lang.Object

Sample client for testing rResult functionality

Constructor Summary

public	Client2()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client2

`public` **`Client2`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client3

```
java.lang.Object
   ┗-Example.Client3
```

public class **Client3**
extends java.lang.Object

Sample client

Constructor Summary

public	Client3()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client3

`public` **`Client3`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client4

```
java.lang.Object
   |
   +-Example.Client4
```

public class **Client4**
extends java.lang.Object

Sample client for communication with C++

Constructor Summary

public	Client4()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client4

`public` **`Client4`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client5

```
java.lang.Object
   |
   +-Example.Client5
```

public class **Client5**
extends java.lang.Object

Sample client

Constructor Summary

public	Client5()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client5

`public` **`Client5`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client6

```
java.lang.Object
   |
   +-Example.Client6
```

public class **Client6**
extends java.lang.Object

Sample client

Constructor Summary

public	Client6()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client6

`public` **`Client6`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client7

```
java.lang.Object
   ┗-Example.Client7
```

public class **Client7**
extends java.lang.Object

Sample client

Constructor Summary

public	Client7()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client7

`public` **`Client7`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client8

```
java.lang.Object
   |
   +-Example.Client8
```

public class **Client8**
extends java.lang.Object

Sample client

Constructor Summary

public	Client8()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client8

`public` **`Client8`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Client9

```
java.lang.Object
   |
   +-Example.Client9
```

public class **Client9**
extends java.lang.Object

Sample client

Constructor Summary

public	Client9()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Client9

`public` **`Client9`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Crypto

```
java.lang.Object
   |
   +-Example.Crypto
```

public class **Crypto**
extends java.lang.Object

Simple client for the crypto component

Constructor Summary

public	Crypto()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Crypto

`public` **`Crypto`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class GSL

```
java.lang.Object
   |
   +-Example.GSL
```

public class **GSL**
extends java.lang.Object

Simple GNU scientific library client

Constructor Summary

public	GSL()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

GSL

`public GSL()`

Methods

main

`public static void main(java.lang.String[] args)`

Example
Class ResMan

```
java.lang.Object
   |
   +-Example.ResMan
```

public class **ResMan**
extends java.lang.Object

Simple resource manager client

Constructor Summary

public	ResMan()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

ResMan

`public` **`ResMan`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Example
Class Server

```
java.lang.Object
   ┗-CTL.ToolBase
      ┗-Example.Server
```

public class **Server**
extends ToolBase

Sample server implemenation

Constructor Summary

public	Server()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class CTL.ToolBase

findAllCIs, findCIs, findCIs, findClasses, findImpls, loadClasses, whereAmI, whereAmI

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Server

```
public Server()
```

Methods

main

```
public static void main(java.lang.String[] args)
```

Example
Class WebServer

```
java.lang.Object
   |
   +-Example.WebServer
```

public class **WebServer**
extends java.lang.Object

Sample server implemenation

Constructor Summary

public	WebServer()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

WebServer

`public` **`WebServer`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Package
Hitman

Hitman
Class Dating

```
java.lang.Object
   |
   +-Hitman.Dating
```

public class **Dating**
extends java.lang.Object

Date parser and formatter (Wrapper around DateFormat)

Field Summary

private static	fmt Date formatter

Constructor Summary

public	Dating()

Method Summary

static java.lang.String	format(java.util.Date date) Format a date
static void	main(java.lang.String[] args) Test code
static java.util.Date	parse(java.lang.String str) Parse a date

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

fmt

```
private static java.text.DateFormat fmt
```

Date formatter

Constructors

Dating

```
public Dating()
```

(continued from last page)

Methods

parse

```
public static java.util.Date parse(java.lang.String str)
```

Parse a date

Parameters:
`str` - String to parse

Returns:
Date object representing the date

---

format

```
public static java.lang.String format(java.util.Date date)
```

Format a date

Parameters:
`date` - Date object

Returns:
String representing the date

---

main

```
public static void main(java.lang.String[] args)
```

Test code

Hitman
Class HURL

```
java.lang.Object
   |
   +-Hitman.HURL
```

public class **HURL**
extends java.lang.Object

URL parser

Field Summary

private	host Hostname
private	pass Password
private	path Path
private	port Port number
private	proto Protocol
private	user Username

Constructor Summary

public	HURL(java.lang.String str) Parse an URL

Method Summary

java.lang.String	host() Retrieve the hostname
static void	main(java.lang.String[] args) Test code
java.lang.String	path() Retrieve the path
int	port() Retrieve the port number
java.lang.String	proto() Retrieve the protocol

java.lang.String	toString() Retrieve a string representation of this object

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

user

private java.lang.String **user**

Username

pass

private java.lang.String **pass**

Password

proto

private java.lang.String **proto**

Protocol

host

private java.lang.String **host**

Hostname

path

private java.lang.String **path**

Path

port

private int **port**

Port number

Constructors

HURL

public **HURL**(java.lang.String str)

Parse an URL

Parameters:

(continued from last page)

`str` - String to parse

Methods

toString

`public java.lang.String toString()`

Retrieve a string representation of this object

Returns:
String

---

proto

`public java.lang.String proto()`

Retrieve the protocol

Returns:
String

---

host

`public java.lang.String host()`

Retrieve the hostname

Returns:
String

---

port

`public int port()`

Retrieve the port number

Returns:
Integer

---

path

`public java.lang.String path()`

Retrieve the path

Returns:
String

---

main

`public static void main(java.lang.String[] args)`

Test code

Hitman
Class IOUtil

```
java.lang.Object
   |
   +-Hitman.IOUtil
```

public class **IOUtil**
extends java.lang.Object

IO utility functions

Constructor Summary

public	IOUtil()

Method Summary

static java.lang.String	exec(java.lang.String cmd) Execute a command (system() equivalent)
static java.lang.String	getExt(java.io.File file) Split the extension from a filename.
static java.lang.String	getFileType(java.io.File file) Determine the MIMEtype of a file (UNIX-specific function).
static java.lang.String	slurp(java.io.Reader in) Read a String from a Reader until EOF
static java.lang.String	slurp(java.io.Reader r, byte __unused)
static java.lang.String	slurp(java.io.Reader in, long len) Read a string from a Reader.

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

IOUtil

```
public IOUtil()
```

Methods

(continued from last page)

slurp

```
public static java.lang.String slurp(java.io.Reader in,
         long len)
  throws java.io.IOException
```

Read a string from a Reader.

Parameters:

`in` - Reader to read from
`len` - Number of bytes to read

Returns:

The String

---

slurp

```
public static java.lang.String slurp(java.io.Reader in)
  throws java.io.IOException
```

Read a String from a Reader until EOF

Parameters:

`in` - Reader to read from

Returns:

The String

---

slurp

```
public static java.lang.String slurp(java.io.Reader r,
         byte __unused)
  throws java.io.IOException
```

---

exec

```
public static java.lang.String exec(java.lang.String cmd)
  throws java.io.IOException
```

Execute a command (system() equivalent)

Parameters:

`cmd` - The command to execute

Returns:

Everything that was written to stdout and stderr by the executed process

---

getFileType

```
public static java.lang.String getFileType(java.io.File file)
  throws java.io.IOException
```

Determine the MIMEtype of a file (UNIX-specific function).

Parameters:

`file` - The relevant file

(continued from last page)

Returns:
MIMEtype as returned by file(1)

---

getExt

```
public static java.lang.String getExt(java.io.File file)
```

Split the extension from a filename.

Parameters:
`file` - The relevant file

Returns:
The file's extension

Hitman
Class NetRequest

```
java.lang.Object
   |
   +-Hitman.NetRequest
```

Direct Known Subclasses:
Request

---

public abstract class **NetRequest**
extends java.lang.Object

Base class for requests

Field Summary

protected	sock Socket
protected	url URL

Constructor Summary

public	NetRequest(HURL url) Constructor from an URL
public	NetRequest(java.net.Socket sock) Constructor from a socket

Method Summary

static java.io.BufferedReader	getReader(java.net.Socket sock) Get a BufferedReader for a certain socket
static java.io.BufferedWriter	getWriter(java.net.Socket sock) Get a BufferedWriter for a certain socket
abstract java.io.Writer	recv() Receive, implementation classes need to implement this
abstract java.io.Reader	send(boolean slurp) Send, implementation classes need to implement this
abstract NetStatus	status() Status report, implementation classes need to implement this

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

url

```
protected Hitman.HURL url
```

URL

sock

```
protected java.net.Socket sock
```

Socket

Constructors

NetRequest

```
public NetRequest(HURL url)
```

Constructor from an URL

NetRequest

```
public NetRequest(java.net.Socket sock)
```

Constructor from a socket

Methods

getReader

```
public static java.io.BufferedReader getReader(java.net.Socket sock)
  throws java.io.IOException
```

Get a BufferedReader for a certain socket

Parameters:
`sock` - Socket

Returns:
BufferedReader

getWriter

```
public static java.io.BufferedWriter getWriter(java.net.Socket sock)
  throws java.io.IOException
```

Get a BufferedWriter for a certain socket

Parameters:
`sock` - Socket

Returns:
BufferedWriter

recv

```
public abstract java.io.Writer recv()
  throws java.io.IOException
```

Receive, implementation classes need to implement this

Returns:
Writer

send

```
public abstract java.io.Reader send(boolean slurp)
  throws java.io.IOException
```

Send, implementation classes need to implement this

Parameters:
`slurp` - If true, all data is read into an internal buffer, otherwise, it can be read via the returned Reader

Returns:
Reader

status

```
public abstract NetStatus status()
```

Status report, implementation classes need to implement this

Returns:
Status

Hitman
Class NetStatus

```
java.lang.Object
   |
   +-Hitman.NetStatus
```

public abstract class **NetStatus**
extends java.lang.Object

Base class for status reports

Constructor Summary

public	NetStatus()

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

NetStatus

`public` **`NetStatus`**`()`

Package
Hitman.HTTP

Hitman.HTTP
Class Client

```
java.lang.Object
   |
   +-Hitman.HTTP.Client
```

public class **Client**
extends java.lang.Object

Simple HTTP client

Constructor Summary

public	Client()

Method Summary

static void	client(HURL url, java.lang.String[] args)
static void	main(java.lang.String[] args)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Client

```
public Client()
```

Methods

client

```
private static void client(HURL url,
                           java.lang.String[] args)
  throws java.io.IOException
```

main

```
public static void main(java.lang.String[] args)
```

Hitman.HTTP
Class Header

```
java.lang.Object
   |
   +-Hitman.HTTP.Header
```

public class **Header**
extends java.lang.Object

HTTP header

Field Summary

protected	date
protected	last_mod
protected	len
protected	proto
protected	repl
protected	req
protected	retcode
private static	udef
protected	usrdef

Constructor Summary

public	Header(java.lang.String req, java.lang.String path, long len)
public	Header(short code)
public	Header(short code, java.lang.String type, java.lang.String cnt)
public	Header(java.lang.String type, java.lang.String cnt)
public	Header(java.io.BufferedReader buf)

Method Summary

void	addHeader(java.lang.String key, java.lang.String value)

java.lang.String	get(java.lang.String key)
java.lang.String	getReply(short code)
java.lang.String	toString()
java.lang.String	userdef()
void	writeTo(java.io.BufferedWriter out)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

udef

private static java.lang.String **udef**

proto

protected java.lang.String **proto**

retcode

protected short **retcode**

req

protected java.lang.String **req**

repl

protected java.lang.String **repl**

len

protected long **len**

date

```
protected java.util.Date date
```

last_mod

```
protected java.util.Date last_mod
```

usrdef

```
protected java.util.HashMap usrdef
```

Constructors

Header

```
public Header(java.lang.String req,
              java.lang.String path,
              long len)
```

Header

```
public Header(short code)
```

Header

```
public Header(short code,
              java.lang.String type,
              java.lang.String cnt)
```

Header

```
public Header(java.lang.String type,
              java.lang.String cnt)
```

Header

```
public Header(java.io.BufferedReader buf)
```

Methods

(continued from last page)

get

```
public java.lang.String get(java.lang.String key)
```

---

userdef

```
private java.lang.String userdef()
```

---

toString

```
public java.lang.String toString()
```

---

writeTo

```
public void writeTo(java.io.BufferedWriter out)
  throws java.io.IOException
```

---

getReply

```
public java.lang.String getReply(short code)
```

---

addHeader

```
public void addHeader(java.lang.String key,
         java.lang.String value)
```

Hitman.HTTP
Class Request

```
java.lang.Object
   ┗-Hitman.NetRequest
      ┗-Hitman.HTTP.Request
```

public class **Request**
extends NetRequest

HTTP request

Nested Class Summary

class	Request.Type Request.Type

Field Summary

public	head Header
private	payload Possible payload
private	reply Server's reply
private	type Request type
protected static final	uagent User agent Value: **Hitman.HTTP v0.1**

Fields inherited from class Hitman.NetRequest

sock, url

Constructor Summary

public	Request(HURL url) Constructor
public	Request(HURL url, Request.Type type) Constructor
public	Request(HURL url, Request.Type type, java.lang.String payload, java.lang.String cntType) POST request constructor

public	Request(HURL url, Request.Type type, byte[] payload, java.lang.String cntType) POST request constructor
public	Request(java.net.Socket sock) Constructor from socket

Method Summary

void	get_request(java.io.BufferedReader in) Get a new request
byte[]	getReply() Retrieve reply
java.io.Writer	recv() Receive a request
java.io.Reader	send(boolean slurp) Send a request
NetStatus	status() Status report
static java.lang.String	TypeToString(Request.Type type) Helper function

Methods inherited from class Hitman.NetRequest

getReader, getWriter, recv, send, status

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

uagent

protected static final java.lang.String **uagent**

User agent
Constant value: **Hitman.HTTP v0.1**

head

public Hitman.HTTP.Header **head**

Header

payload

private byte **payload**

Possible payload

reply

```
private byte reply
```

Server's reply

type

```
private Hitman.HTTP.Request.Type type
```

Request type

Constructors

Request

```
public Request(HURL url)
```

Constructor

Request

```
public Request(HURL url,
               Request.Type type)
```

Constructor

Request

```
public Request(HURL url,
               Request.Type type,
               java.lang.String payload,
               java.lang.String cntType)
```

POST request constructor

Request

```
public Request(HURL url,
               Request.Type type,
               byte[] payload,
               java.lang.String cntType)
```

POST request constructor

Request

```
public Request(java.net.Socket sock)
```

Constructor from socket

Methods

getReply

```
public byte[] getReply()
```

Retrieve reply

(continued from last page)

Returns:
Data

get_request

```
private void get_request(java.io.BufferedReader in)
  throws java.io.IOException
```

Get a new request

Parameters:
`in` - Input stream

recv

```
public java.io.Writer recv()
  throws java.io.IOException
```

Receive a request

Returns:
Output stream

send

```
public java.io.Reader send(boolean slurp)
  throws java.io.IOException
```

Send a request

Parameters:
`slurp` - Whether or not to read all data immediately

Returns:
Input stream

status

```
public NetStatus status()
```

Status report

Returns:
Status

TypeToString

```
private static java.lang.String TypeToString(Request.Type type)
```

Helper function

Hitman.HTTP
Class Request.Type

```
java.lang.Object
   |
   +-java.lang.Enum
      |
      +-Hitman.HTTP.Request.Type
```

All Implemented Interfaces:
java.io.Serializable, java.lang.Comparable

---

public static final class **Request.Type**
extends java.lang.Enum

Possible request types

Field Summary

public static final	GET
public static final	POST
public static final	UNDEF

Fields inherited from class java.lang.Enum

name, ordinal

Constructor Summary

private	Request.Type()

Method Summary

static Request.Type	valueOf(java.lang.String name)
static Request.Type[]	values()

Methods inherited from class java.lang.Enum

clone, compareTo, equals, getDeclaringClass, hashCode, name, ordinal, toString, valueOf

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.lang.Comparable

compareTo

Fields

UNDEF

```
public static final Hitman.HTTP.Request.Type UNDEF
```

GET

```
public static final Hitman.HTTP.Request.Type GET
```

POST

```
public static final Hitman.HTTP.Request.Type POST
```

Constructors

Request.Type

```
private Request.Type()
```

Methods

values

```
public final static Request.Type[] values()
```

valueOf

```
public static Request.Type valueOf(java.lang.String name)
```

Hitman.HTTP
Class Server

```
java.lang.Object
   |
   +-Hitman.HTTP.Server
```

public class **Server**
extends java.lang.Object

Simple HTTP daemon

Nested Class Summary

class	Server.ListenThread Server.ListenThread

Field Summary

private static	www_root Document root

Constructor Summary

public	Server()

Method Summary

static void	error(java.io.BufferedWriter out, short errcode) Handle errors
static void	handle_cgi(java.io.BufferedWriter out, java.io.File cgi) Handle a CGI call request
static void	main(java.lang.String[] args) Main program
static void	reply(java.io.BufferedWriter out, java.io.File file) Reply to a GET request
static void	reply(java.io.BufferedWriter out, java.lang.String cntType, java.lang.String cnt) Reply to a POST request

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

(continued from last page)

www_root

```
private static java.lang.String www_root
```

Document root

Constructors

Server

```
public Server()
```

Methods

error

```
private static void error(java.io.BufferedWriter out,
                          short errcode)
  throws java.io.IOException
```

Handle errors

Parameters:

`out` - Output stream
`errcode` - Error code

---

reply

```
private static void reply(java.io.BufferedWriter out,
                          java.lang.String cntType,
                          java.lang.String cnt)
  throws java.io.IOException
```

Reply to a POST request

Parameters:

`out` - Output stream
`cntType` - Content type
`cnt` - Content

---

reply

```
private static void reply(java.io.BufferedWriter out,
                          java.io.File file)
  throws java.io.IOException
```

Reply to a GET request

Parameters:

`out` - Output stream
`file` - Requested file

(continued from last page)

handle_cgi

```
private static void handle_cgi(java.io.BufferedWriter out,
         java.io.File cgi)
  throws java.io.IOException
```

Handle a CGI call request

Parameters:

`out` - Output stream
`cgi` - CGI to call

---

main

```
public static void main(java.lang.String[] args)
```

Main program

Hitman.HTTP
Class Server.ListenThread

```
java.lang.Object
   |
   +-java.lang.Thread
      |
      +-Hitman.HTTP.Server.ListenThread
```

All Implemented Interfaces:
java.lang.Runnable

---

private static class **Server.ListenThread**
extends java.lang.Thread

Private listen thread

Field Summary

private	ssock

Fields inherited from class `java.lang.Thread`

`blocker`, `blockerLock`, `contextClassLoader`, `daemon`, `defaultUncaughtExceptionHandler`, `eetop`, `EMPTY_STACK_TRACE`, `group`, `inheritableThreadLocals`, `inheritedAccessControlContext`, `MAX_PRIORITY`, `MIN_PRIORITY`, `name`, `NORM_PRIORITY`, `priority`, `single_step`, `stackSize`, `started`, `stillborn`, `SUBCLASS_IMPLEMENTATION_PERMISSION`, `subclassAudits`, `target`, `threadInitNumber`, `threadLocals`, `threadQ`, `threadSeqNumber`, `threadStatus`, `tid`, `uncaughtExceptionHandler`

Constructor Summary

public	Server.ListenThread(java.net.ServerSocket ssock)

Method Summary

void	run()

Methods inherited from class `java.lang.Thread`

`activeCount`, `auditSubclass`, `blockedOn`, `checkAccess`, `countStackFrames`, `currentThread`, `destroy`, `dispatchUncaughtException`, `dumpStack`, `dumpThreads`, `enumerate`, `exit`, `getAllStackTraces`, `getContextClassLoader`, `getDefaultUncaughtExceptionHandler`, `getId`, `getName`, `getPriority`, `getStackTrace`, `getState`, `getThreadGroup`, `getThreads`, `getUncaughtExceptionHandler`, `holdsLock`, `init`, `interrupt`, `interrupt0`, `interrupted`, `isAlive`, `isCCLOverridden`, `isDaemon`, `isInterrupted`, `isInterrupted`, `join`, `join`, `join`, `nextThreadID`, `nextThreadNum`, `registerNatives`, `resume`, `resume0`, `run`, `setContextClassLoader`, `setDaemon`, `setDefaultUncaughtExceptionHandler`, `setName`, `setPriority`, `setPriority0`, `setUncaughtExceptionHandler`, `sleep`, `sleep`, `start`, `start0`, `stop`, `stop`, `stop0`, `suspend`, `suspend0`, `toString`, `yield`

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface java.lang.Runnable
run

Fields

ssock

private java.net.ServerSocket **ssock**

Constructors

Server.ListenThread

public **Server.ListenThread**(java.net.ServerSocket ssock)

Methods

run

public void **run**()

Package
Impl

Impl
Class Anything

```
java.lang.Object
   ┗-Impl.Anything
```

public class **Anything**
extends java.lang.Object

Test class for Any objects

Constructor Summary

public	Anything()

Method Summary

void	foo0(AnyObj bar)
void	foo1(int foo)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Anything

public **Anything**()

Methods

foo0

public void **foo0**(AnyObj bar)

foo1

public void **foo1**(int foo)

Impl
Class Application

```
java.lang.Object
   |
   +-Impl.Application
```

public class **Application**
extends java.lang.Object

Implementation of a component which calls other components

Constructor Summary

public	Application()

Method Summary

static java.lang.String	run()

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Application

`public` **`Application`**`()`

Methods

run

`public static java.lang.String` **`run`**`()`

Impl
Class CallByReference

```
java.lang.Object
   |
   +-Impl.CallByReference
```

public class **CallByReference**
extends java.lang.Object

Call-by-reference example. This class, Impl.Types.MyRef and Example.Client3 demonstrate how to emulate call-by-reference in Java. You cannot simply modify ref and return something else, because Java actually uses call-by-value for reference types, too. The ref inside test() is a copy of the ref the caller passed to the method. Therefore, the user code needs to set its ref to the ref returned by test().

Constructor Summary

public	CallByReference()

Method Summary

MyRef	test(MyRef ref)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

CallByReference

```
public CallByReference()
```

Methods

test

```
public MyRef test(MyRef ref)
```

Impl
Class Chain

```
java.lang.Object
   ┗-Impl.Chain
```

public class **Chain**
extends java.lang.Object

Testing a chain of components (Java implementation)

Constructor Summary

public	Chain()

Method Summary

double	calcPI(int i)

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Chain

```
public Chain()
```

Methods

calcPI

```
public double calcPI(int i)
```

Impl
Class ChainC

```
java.lang.Object
   |
   +-Impl.ChainC
```

public class **ChainC**
extends java.lang.Object

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Constructor Summary

public	ChainC()

Method Summary

java.lang.Double	calcPI(java.lang.Integer arg0)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

ChainC

`public` **`ChainC`**`()`

Methods

calcPI

`public java.lang.Double` **`calcPI`**`(java.lang.Integer arg0)`

Impl
Class ChainForwardDecl

```
java.lang.Object
   |
   +-Impl.ChainForwardDecl
```

public class **ChainForwardDecl**
extends java.lang.Object

Forward Declaration for Chain, which needs ChainCI and therefore would not be able to exist w/o this.

Constructor Summary

public	ChainForwardDecl()

Method Summary

double	calcPI(int i)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

ChainForwardDecl

`public` **`ChainForwardDecl`**`()`

Methods

calcPI

`public double` **`calcPI`**`(int i)`

Impl
Class CTest

```
java.lang.Object
   |
   +-Impl.CTest
```

public class **CTest**
extends java.lang.Object

Test implementation class

Constructor Summary

public	CTest()

Method Summary

int	add(int a, int b)
static boolean	system(java.lang.String cmd)
java.lang.String	toString()

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

CTest

```
public CTest()
```

Methods

system

```
public static boolean system(java.lang.String cmd)
```

add

```
public int add(int a,
               int b)
```

(continued from last page)

toString

```
public java.lang.String toString()
```

Impl
Class EvCalc

```
java.lang.Object
   |
   +-Impl.EvCalc
```

public class **EvCalc**
extends java.lang.Object

Test implementation class

Constructor Summary

public	EvCalc()

Method Summary

int	barfoo(int i, int j)
double	futzi(TripleDash td)
java.lang.String	last(java.util.LinkedList list)
TripleDash	send(TripleDash td)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

EvCalc

```
public EvCalc()
```

Methods

barfoo

```
public int barfoo(int i,
                  int j)
```

(continued from last page)

futzi

```
public double futzi(TripleDash td)
```

---

send

```
public TripleDash send(TripleDash td)
```

---

last

```
public java.lang.String last(java.util.LinkedList list)
```

Impl
Class EvilArrayTest

```
java.lang.Object
   |
   +-Impl.EvilArrayTest
```

public class **EvilArrayTest**
extends java.lang.Object

Testing an array of user-defined types

Constructor Summary

public	EvilArrayTest()

Method Summary

int[]	foo1(int[] blah)
java.lang.String[]	foo2(java.lang.String[] blah)
DoubleDash[]	foo3(DoubleDash[] blah)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

EvilArrayTest

public **EvilArrayTest**()

Methods

foo1

public int[] **foo1**(int[] blah)

foo2

public java.lang.String[] **foo2**(java.lang.String[] blah)

foo3

```
public DoubleDash[] foo3(DoubleDash[] blah)
```

Impl
Class Hello

```
java.lang.Object
   |
   +-Impl.Hello
```

public class **Hello**
extends java.lang.Object

'Hello World' component for comparison with Java RMI

Constructor Summary

public	Hello()

Method Summary

java.lang.String	sayHello()

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Hello

`public` **`Hello`**`()`

Methods

sayHello

`public java.lang.String` **`sayHello`**`()`

Impl
Class Java

```
java.lang.Object
   |
   +-Impl.Java
```

public class **Java**
extends java.lang.Object

Testing the various Java standard library serializers which are built into the CTL

Constructor Summary

public	Java()

Method Summary

java.util.HashMap	hashmap(java.util.HashMap map)
java.util.HashSet	hashset(java.util.HashSet set)
java.util.LinkedList	linkedlist(java.util.LinkedList list)
java.util.Stack	stack(java.util.Stack stack)
java.util.Vector	vector(java.util.Vector vector)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Java

`public` **`Java`**`()`

Methods

hashmap

`public java.util.HashMap` **`hashmap`**`(java.util.HashMap map)`

hashset

```
public java.util.HashSet hashset(java.util.HashSet set)
```

linkedlist

```
public java.util.LinkedList linkedlist(java.util.LinkedList list)
```

stack

```
public java.util.Stack stack(java.util.Stack stack)
```

vector

```
public java.util.Vector vector(java.util.Vector vector)
```

Impl
Class Linalg

```
java.lang.Object
   |
   +-Impl.Linalg
```

public class **Linalg**
extends java.lang.Object

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Constructor Summary

public	Linalg()

Method Summary

CArray	solve_cholesky(Tupel arg0, CArray arg1)
CArray	solve_HH(Tupel arg0, CArray arg1)
CArray	solve_LU(Tupel arg0, CArray arg1)
CArray	solve_QR_ls(Tupel arg0, CArray arg1, CArray arg2)
CArray	solve_QR(Tupel arg0, CArray arg1)
CArray	solve_QRPT(Tupel arg0, CArray arg1)
CArray	solve_SV(Tupel arg0, CArray arg1)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Linalg

`public` **`Linalg`**`()`

Methods

(continued from last page)

solve_LU

```
public CArray solve_LU(Tupel arg0,
                       CArray arg1)
  throws CTLException
```

solve_QR

```
public CArray solve_QR(Tupel arg0,
                       CArray arg1)
  throws CTLException
```

solve_QR_ls

```
public CArray solve_QR_ls(Tupel arg0,
                          CArray arg1,
                          CArray arg2)
  throws CTLException
```

solve_QRPT

```
public CArray solve_QRPT(Tupel arg0,
                         CArray arg1)
  throws CTLException
```

solve_SV

```
public CArray solve_SV(Tupel arg0,
                       CArray arg1)
  throws CTLException
```

solve_cholesky

```
public CArray solve_cholesky(Tupel arg0,
                             CArray arg1)
  throws CTLException
```

solve_HH

```
public CArray solve_HH(Tupel arg0,
                       CArray arg1)
  throws CTLException
```

Impl
Class Mathe

```
java.lang.Object
   |
   +-Impl.Mathe
```

public class **Mathe**
extends java.lang.Object

Test implementation class

Field Summary

private	foo

Constructor Summary

public	Mathe()
public	Mathe(java.lang.String foo)
public	Mathe(java.lang.String foo, boolean bar)

Method Summary

int	add_a(int[] values)
int	add(java.lang.Integer a, java.lang.Integer b)
int	div(int a, int b)
static java.lang.String	foobar()
java.lang.String	getFoo()
double	log(double a)
float	log(float a)
DoubleDash	loglog(DoubleDash d)
int	mul(int a, int b)
void	setFoo(java.lang.String foo)
int	sub(int a, int b)

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

foo

`private java.lang.String` **`foo`**

Constructors

Mathe

`public` **`Mathe`**`()`

Mathe

`public` **`Mathe`**`(java.lang.String foo)`

Mathe

`public` **`Mathe`**`(java.lang.String foo,`
`boolean bar)`

Methods

foobar

`public static java.lang.String` **`foobar`**`()`

getFoo

`public java.lang.String` **`getFoo`**`()`

setFoo

`public void` **`setFoo`**`(java.lang.String foo)`

(continued from last page)

add

```
public int add(java.lang.Integer a,
         java.lang.Integer b)
```

---

sub

```
public int sub(int a,
         int b)
```

---

mul

```
public int mul(int a,
         int b)
```

---

div

```
public int div(int a,
         int b)
```

---

log

```
public double log(double a)
```

---

log

```
public float log(float a)
```

---

loglog

```
public DoubleDash loglog(DoubleDash d)
```

---

add_a

```
public int add_a(int[] values)
```

Impl
Class PiSimple

```
java.lang.Object
   |
   +-Impl.PiSimple
```

public class **PiSimple**
extends java.lang.Object

Simple Pi calculation algorithm

Constructor Summary

public	PiSimple()

Method Summary

static double	calc(double w, int j, int iterations)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

PiSimple

```
public PiSimple()
```

Methods

calc

```
public static double calc(double w,
         int j,
         int iterations)
```

Impl
Class Send

```
java.lang.Object
   ┗-Impl.Send
```

public class **Send**
extends java.lang.Object

Test implementation class

Constructor Summary

public	Send()

Method Summary

boolean[]	send(boolean[] data)
byte[]	send(byte[] data)
char[]	send(char[] data)
double[]	send(double[] data)
float[]	send(float[] data)
int[]	send(int[] data)
long[]	send(long[] data)
short[]	send(short[] data)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Send

`public` **`Send`**`()`

Methods

(continued from last page)

send

```
public boolean[] send(boolean[] data)
```

---

send

```
public byte[] send(byte[] data)
```

---

send

```
public char[] send(char[] data)
```

---

send

```
public double[] send(double[] data)
```

---

send

```
public float[] send(float[] data)
```

---

send

```
public int[] send(int[] data)
```

---

send

```
public long[] send(long[] data)
```

---

send

```
public short[] send(short[] data)
```

Package
Impl.Types

Impl.Types
Class DoubleDash

```
java.lang.Object
    |
    +-Impl.Types.DoubleDash
```

All Implemented Interfaces:
Writable

---

public class **DoubleDash**
extends java.lang.Object
implements Writable

Test data structure class

Field Summary

private	d
private	f

Constructor Summary

public	DoubleDash()
public	DoubleDash(double d, float f)

Method Summary

boolean	equals(DoubleDash d)
double	getDouble()
float	getFloat()
void	read(SerialIn in)
void	setDouble(double d)
void	setFloat(float f)
java.lang.String	toString()
void	write(SerialOut out)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable
read, write

Fields

d

```
private double d
```

f

```
private float f
```

Constructors

DoubleDash

```
public DoubleDash()
```

DoubleDash

```
public DoubleDash(double d,
                  float f)
```

Methods

getDouble

```
public double getDouble()
```

getFloat

```
public float getFloat()
```

setDouble

```
public void setDouble(double d)
```

setFloat

```
public void setFloat(float f)
```

equals

```
public boolean equals(DoubleDash d)
```

toString

```
public java.lang.String toString()
```

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException
```

write

```
public void write(SerialOut out)
  throws java.io.IOException
```

Impl.Types
Class MyRef

```
java.lang.Object
    |
    +-Impl.Types.MyRef
```

All Implemented Interfaces:
Writable

---

public class **MyRef**
extends java.lang.Object
implements Writable

Call-by-reference test

Field Summary

public	i
public	str

Constructor Summary

public	MyRef(int i, java.lang.String str)

Method Summary

void	read(SerialIn in)
java.lang.String	toString()
void	write(SerialOut out)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

i

```
public int i
```

(continued from last page)

str

```
public java.lang.String str
```

Constructors

MyRef

```
public MyRef(int i,
             java.lang.String str)
```

Methods

toString

```
public java.lang.String toString()
```

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Impl.Types
Class TripleDash

```
java.lang.Object
   |
   +-Impl.Types.TripleDash
```

All Implemented Interfaces:
Writable

---

public class **TripleDash**
extends java.lang.Object
implements Writable

Test data structure class

Field Summary

private	bar
private	dd1
private	dd2
private	foo2

Constructor Summary

public	TripleDash(DoubleDash dd1, DoubleDash dd2, int[] foo2)
public	TripleDash(double d1, float f1, double d2, float f2, int[] foo2)

Method Summary

boolean	equals(int[] foobar)
DoubleDash	getDD(int i)
void	read(SerialIn in)
void	setDD(int i, DoubleDash dd)
java.lang.String	toString()
void	write(SerialOut out)

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

foo2

```
private int foo2
```

dd1

```
private Impl.Types.DoubleDash dd1
```

dd2

```
private Impl.Types.DoubleDash dd2
```

bar

```
private int bar
```

Constructors

TripleDash

```
public TripleDash(DoubleDash dd1,
                  DoubleDash dd2,
                  int[] foo2)
```

TripleDash

```
public TripleDash(double d1,
                  float f1,
                  double d2,
                  float f2,
                  int[] foo2)
```

Methods

(continued from last page)

getDD

```
public DoubleDash getDD(int i)
```

setDD

```
public void setDD(int i,
         DoubleDash dd)
```

toString

```
public java.lang.String toString()
```

equals

```
public boolean equals(int[] foobar)
```

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

write

```
public void write(SerialOut out)
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Impl.Types
Class WriteTable

```
java.lang.Object
    |
    +-Impl.Types.WriteTable
```

All Implemented Interfaces:
Writable

---

public class **WriteTable**
extends java.lang.Object
implements Writable

Test data structure class

Field Summary

private	bar
private	foo

Constructor Summary

public	WriteTable(int foo, java.lang.String bar)

Method Summary

java.lang.String	bar()
boolean	equals(WriteTable moongoo)
int	foo()
void	read(SerialIn in)
java.lang.String	toString()
void	write(SerialOut out)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface CTL.Serialize.Writable

read, write

Fields

foo

```
private int foo
```

bar

```
private java.lang.String bar
```

Constructors

WriteTable

```
public WriteTable(int foo,
                  java.lang.String bar)
```

Methods

foo

```
public int foo()
```

bar

```
public java.lang.String bar()
```

toString

```
public java.lang.String toString()
```

equals

```
public boolean equals(WriteTable moongoo)
```

read

```
public void read(SerialIn in)
  throws java.io.IOException,
         java.lang.ClassNotFoundException
```

write

```
public void write(SerialOut out)
  throws java.io.IOException
```

Package
javaSys

javaSys
Class AnythingCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.AnythingCI
```

Direct Known Subclasses:
AnythingRI, AnythingLocal

---

public class **AnythingCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	AnythingCI()
public	AnythingCI(Process proc)
public	AnythingCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
void	foo0(AnyObj arg0)
void	foo1(int arg0)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.AnythingCI self
```

Constructors

AnythingCI

```
public AnythingCI()
```

AnythingCI

```
public AnythingCI(Process proc)
```

AnythingCI

```
public AnythingCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

foo0

```
public void foo0(AnyObj arg0)
```

foo1

```
public void foo1(int arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class AnythingLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.AnythingCI
         ┗-javaSys.AnythingLocal
```

public class **AnythingLocal**
extends AnythingCI

Field Summary

private	self

Fields inherited from class javaSys.AnythingCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	AnythingLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
void	foo0(AnyObj arg0)
void	foo1(int arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.AnythingCI

accept, foo0, foo1, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.Anything self
```

Constructors

AnythingLocal

```
public AnythingLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

foo0

```
public void foo0(AnyObj arg0)
```

foo1

```
public void foo1(int arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class AnythingRI

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.AnythingCI
         ┣-javaSys.AnythingRI
```

public class **AnythingRI**
extends AnythingCI

Fields inherited from class javaSys.AnythingCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	AnythingRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
void	foo0(AnyObj arg0)
void	foo1(int arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.AnythingCI
accept, foo0, foo1, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

AnythingRI

```
public AnythingRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

foo0

```
public void foo0(AnyObj arg0)
```

---

foo1

```
public void foo1(int arg0)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class ApplicationCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.ApplicationCI
```

Direct Known Subclasses:
ApplicationRI, ApplicationLocal

---

public class **ApplicationCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	ApplicationCI()
public	ApplicationCI(Process proc)
public	ApplicationCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
static rResult	run_rr()
static java.lang.String	run()
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.ApplicationCI self
```

Constructors

ApplicationCI

```
public ApplicationCI()
```

ApplicationCI

```
public ApplicationCI(Process proc)
```

ApplicationCI

```
public ApplicationCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

run

```
public static java.lang.String run()
```

run_rr

```
public static rResult run_rr()
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class ApplicationLocal

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.ApplicationCI
         |
         +-javaSys.ApplicationLocal
```

public class **ApplicationLocal**
extends ApplicationCI

Field Summary

private	self

Fields inherited from class javaSys.ApplicationCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	ApplicationLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
static rResult	run_rr()
static java.lang.String	run()

Methods inherited from class javaSys.ApplicationCI

accept, getBase, peerID, proc, run_rr, run, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.Application self
```

Constructors

ApplicationLocal

```
public ApplicationLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

run

```
public static java.lang.String run()
```

run_rr

```
public static rResult run_rr()
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class ApplicationRI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.ApplicationCI
         |
         +-javaSys.ApplicationRI
```

public class **ApplicationRI**
extends ApplicationCI

Fields inherited from class javaSys.ApplicationCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	ApplicationRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
static rResult	run_rr()
static rResult	run_rr(Process proc)
static java.lang.String	run()
static java.lang.String	run(Process proc)

Methods inherited from class javaSys.ApplicationCI
accept, getBase, peerID, proc, run_rr, run, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

ApplicationRI

public **ApplicationRI**(Process proc)

Methods

getBase

public java.lang.String **getBase**()

Retrieve the implementation class of this remote interface

run

public static java.lang.String **run**()

run

public static java.lang.String **run**(Process proc)

run_rr

public static rResult **run_rr**()

run_rr

public static rResult **run_rr**(Process proc)

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class CallByReferenceCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.CallByReferenceCI
```

Direct Known Subclasses:
CallByReferenceRI, CallByReferenceLocal

---

public class **CallByReferenceCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	CallByReferenceCI()
public	CallByReferenceCI(Process proc)
public	CallByReferenceCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
rResult	test_rr(MyRef arg0)
MyRef	test(MyRef arg0)
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.CallByReferenceCI self
```

Constructors

CallByReferenceCI

```
public CallByReferenceCI()
```

CallByReferenceCI

```
public CallByReferenceCI(Process proc)
```

CallByReferenceCI

```
public CallByReferenceCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

test

```
public MyRef test(MyRef arg0)
```

test_rr

```
public rResult test_rr(MyRef arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class CallByReferenceLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.CallByReferenceCI
         ┗-javaSys.CallByReferenceLocal
```

public class **CallByReferenceLocal**
extends CallByReferenceCI

Field Summary

private	self

Fields inherited from class javaSys.CallByReferenceCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	CallByReferenceLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	test_rr(MyRef arg0)
MyRef	test(MyRef arg0)

Methods inherited from class javaSys.CallByReferenceCI

accept, getBase, peerID, proc, test_rr, test, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.CallByReference self
```

Constructors

CallByReferenceLocal

```
public CallByReferenceLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

test

```
public MyRef test(MyRef arg0)
```

test_rr

```
public rResult test_rr(MyRef arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class CallByReferenceRI

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.CallByReferenceCI
         ┗-javaSys.CallByReferenceRI
```

public class **CallByReferenceRI**
extends CallByReferenceCI

Fields inherited from class javaSys.CallByReferenceCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	CallByReferenceRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	test_rr(MyRef arg0)
MyRef	test(MyRef arg0)

Methods inherited from class javaSys.CallByReferenceCI
accept, getBase, peerID, proc, test_rr, test, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

CallByReferenceRI

```
public CallByReferenceRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

test

```
public MyRef test(MyRef arg0)
```

---

test_rr

```
public rResult test_rr(MyRef arg0)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class ChainCCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.ChainCCI
```

Direct Known Subclasses:
ChainCRI, ChainCLocal

---

public class **ChainCCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	ChainCCI()
public	ChainCCI(Process proc)
public	ChainCCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	calcPI_rr(java.lang.Integer arg0)
double	calcPI(java.lang.Integer arg0)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.ChainCCI self
```

Constructors

ChainCCI

```
public ChainCCI()
```

ChainCCI

```
public ChainCCI(Process proc)
```

ChainCCI

```
public ChainCCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

calcPI

```
public double calcPI(java.lang.Integer arg0)
```

calcPI_rr

```
public rResult calcPI_rr(java.lang.Integer arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class ChainCI

```
java.lang.Object
   |-CTL.RI
      |-javaSys.ChainCI
```

Direct Known Subclasses:
ChainRI, ChainLocal

---

public class **ChainCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	ChainCI()
public	ChainCI(Process proc)
public	ChainCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	calcPI_rr(int arg0)
double	calcPI(int arg0)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.ChainCI self
```

Constructors

ChainCI

```
public ChainCI()
```

ChainCI

```
public ChainCI(Process proc)
```

ChainCI

```
public ChainCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

calcPI

```
public double calcPI(int arg0)
```

calcPI_rr

```
public rResult calcPI_rr(int arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class ChainCLocal

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.ChainCCI
         |
         +-javaSys.ChainCLocal
```

public class **ChainCLocal**
extends ChainCCI

Field Summary

private	self

Fields inherited from class javaSys.ChainCCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	ChainCLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	calcPI_rr(java.lang.Integer arg0)
double	calcPI(java.lang.Integer arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.ChainCCI

accept, calcPI_rr, calcPI, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.ChainC self
```

Constructors

ChainCLocal

```
public ChainCLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

calcPI

```
public double calcPI(java.lang.Integer arg0)
```

calcPI_rr

```
public rResult calcPI_rr(java.lang.Integer arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class ChainCRI

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.ChainCCI
         ┗-javaSys.ChainCRI
```

public class **ChainCRI**
extends ChainCCI

Fields inherited from class javaSys.ChainCCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	ChainCRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	calcPI_rr(java.lang.Integer arg0)
double	calcPI(java.lang.Integer arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.ChainCCI
accept, calcPI_rr, calcPI, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

ChainCRI

```
public ChainCRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

calcPI

```
public double calcPI(java.lang.Integer arg0)
```

---

calcPI_rr

```
public rResult calcPI_rr(java.lang.Integer arg0)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class ChainLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.ChainCI
         ┗-javaSys.ChainLocal
```

public class **ChainLocal**
extends ChainCI

Field Summary

private	self

Fields inherited from class javaSys.ChainCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	ChainLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	calcPI_rr(int arg0)
double	calcPI(int arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.ChainCI

accept, calcPI_rr, calcPI, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.Chain self
```

Constructors

ChainLocal

```
public ChainLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

calcPI

```
public double calcPI(int arg0)
```

calcPI_rr

```
public rResult calcPI_rr(int arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class ChainRI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.ChainCI
         |
         +-javaSys.ChainRI
```

public class **ChainRI**
extends ChainCI

Fields inherited from class javaSys.ChainCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	ChainRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	calcPI_rr(int arg0)
double	calcPI(int arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.ChainCI
accept, calcPI_rr, calcPI, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

ChainRI

```
public ChainRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

calcPI

```
public double calcPI(int arg0)
```

---

calcPI_rr

```
public rResult calcPI_rr(int arg0)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class CryptCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.CryptCI
```

Direct Known Subclasses:
CryptRI, CryptLocal

---

public class **CryptCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	CryptCI(java.lang.String arg0)
public	CryptCI(Process proc, java.lang.String arg0)
public	CryptCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
void	breakCipher(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2, int arg3)
void	createKey(java.lang.String arg0)
void	decrypt(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2)
void	encrypt(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2)
java.lang.String	getBase()

PeerID	peerID()
static Process	proc()
java.lang.String	toString()
static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.CryptCI self
```

Constructors

CryptCI

```
public CryptCI(java.lang.String arg0)
```

CryptCI

```
public CryptCI(Process proc,
               java.lang.String arg0)
```

CryptCI

```
public CryptCI(java.lang.Object obj)
```

Methods

(continued from last page)

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

createKey

```
public void createKey(java.lang.String arg0)
```

---

encrypt

```
public void encrypt(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2)
```

---

decrypt

```
public void decrypt(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2)
```

---

breakCipher

```
public void breakCipher(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2,
         int arg3)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

---

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class CryptLocal

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.CryptCI
         |
         +-javaSys.CryptLocal
```

public class **CryptLocal**
extends CryptCI

Field Summary

private	self

Fields inherited from class javaSys.CryptCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	CryptLocal(java.lang.String arg0)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
void	breakCipher(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2, int arg3)
void	createKey(java.lang.String arg0)
void	decrypt(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2)
void	encrypt(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2)
java.lang.String	getBase()

Methods inherited from class javaSys.CryptCI

accept, breakCipher, createKey, decrypt, encrypt, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Components.Crypt self
```

Constructors

CryptLocal

```
public CryptLocal(java.lang.String arg0)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

createKey

```
public void createKey(java.lang.String arg0)
```

encrypt

```
public void encrypt(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2)
```

decrypt

```
public void decrypt(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2)
```

(continued from last page)

breakCipher

```
public void breakCipher(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2,
         int arg3)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class CryptRI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.CryptCI
         |
         +-javaSys.CryptRI
```

public class **CryptRI**
extends CryptCI

Fields inherited from class javaSys.CryptCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	CryptRI(Process proc, java.lang.String arg0)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
void	breakCipher(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2, int arg3)
void	createKey(java.lang.String arg0)
void	decrypt(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2)
void	encrypt(java.lang.String arg0, java.lang.String arg1, java.lang.String arg2)
java.lang.String	getBase()

Methods inherited from class javaSys.CryptCI
accept, breakCipher, createKey, decrypt, encrypt, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

CryptRI

```
public CryptRI(Process proc,
               java.lang.String arg0)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

createKey

```
public void createKey(java.lang.String arg0)
```

encrypt

```
public void encrypt(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2)
```

decrypt

```
public void decrypt(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2)
```

breakCipher

```
public void breakCipher(java.lang.String arg0,
         java.lang.String arg1,
         java.lang.String arg2,
         int arg3)
```

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class CTestCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.CTestCI
```

Direct Known Subclasses:
CTestRI, CTestLocal

---

public class **CTestCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	CTestCI()
public	CTestCI(Process proc)
public	CTestCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_rr(int arg0, int arg1)
int	add(int arg0, int arg1)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
static rResult	system_rr(java.lang.String arg0)

static boolean	system(java.lang.String arg0)
rResult	toString_rr()
java.lang.String	toString()
static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.CTestCI self
```

Constructors

CTestCI

```
public CTestCI()
```

CTestCI

```
public CTestCI(Process proc)
```

CTestCI

```
public CTestCI(java.lang.Object obj)
```

Methods

(continued from last page)

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

system

```
public static boolean system(java.lang.String arg0)
```

---

system_rr

```
public static rResult system_rr(java.lang.String arg0)
```

---

add

```
public int add(int arg0,
               int arg1)
```

---

add_rr

```
public rResult add_rr(int arg0,
               int arg1)
```

---

toString

```
public java.lang.String toString()
```

---

toString_rr

```
public rResult toString_rr()
```

---

accept

```
public static void accept(OIStream in,
               Header ohead,
               long objID,
               FID fid,
               int id,
               Env env)
  throws java.io.IOException,
               java.lang.ClassNotFoundException,
               java.lang.InstantiationException,
               java.lang.IllegalAccessException,
               java.lang.NoSuchMethodException,
               java.lang.reflect.InvocationTargetException,
               CTLException
```

(continued from last page)

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

javaSys
Class CTestLocal

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.CTestCI
         |
         +-javaSys.CTestLocal
```

public class **CTestLocal**
extends CTestCI

Field Summary

private	self

Fields inherited from class javaSys.CTestCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	CTestLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_rr(int arg0, int arg1)
int	add(int arg0, int arg1)
java.lang.String	getBase()
static rResult	system_rr(java.lang.String arg0)
static boolean	system(java.lang.String arg0)
rResult	toString_rr()
java.lang.String	toString()

Methods inherited from class javaSys.CTestCI

accept, add_rr, add, getBase, peerID, proc, system_rr, system, toString_rr, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.CTest self
```

Constructors

CTestLocal

```
public CTestLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

system

```
public static boolean system(java.lang.String arg0)
```

system_rr

```
public static rResult system_rr(java.lang.String arg0)
```

add

```
public int add(int arg0,
               int arg1)
```

add_rr

```
public rResult add_rr(int arg0,
                      int arg1)
```

toString

```
public java.lang.String toString()
```

toString_rr

```
public rResult toString_rr()
```

accept

```
public static void accept(OIStream in,
                          Header ohead,
                          long objID,
                          FID fid,
                          int id,
                          Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class CTestRI

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.CTestCI
         ┗-javaSys.CTestRI
```

public class **CTestRI**
extends CTestCI

Fields inherited from class javaSys.CTestCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	CTestRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_rr(int arg0, int arg1)
int	add(int arg0, int arg1)
java.lang.String	getBase()
static rResult	system_rr(Process proc, java.lang.String arg0)
static rResult	system_rr(java.lang.String arg0)
static boolean	system(Process proc, java.lang.String arg0)
static boolean	system(java.lang.String arg0)
rResult	toString_rr()
java.lang.String	toString()

Methods inherited from class javaSys.CTestCI

accept, add_rr, add, getBase, peerID, proc, system_rr, system, toString_rr, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

CTestRI

```
public CTestRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

system

```
public static boolean system(java.lang.String arg0)
```

system

```
public static boolean system(Process proc,
         java.lang.String arg0)
```

system_rr

```
public static rResult system_rr(java.lang.String arg0)
```

system_rr

```
public static rResult system_rr(Process proc,
         java.lang.String arg0)
```

(continued from last page)

add

```
public int add(int arg0,
               int arg1)
```

---

add_rr

```
public rResult add_rr(int arg0,
               int arg1)
```

---

toString

```
public java.lang.String toString()
```

---

toString_rr

```
public rResult toString_rr()
```

---

accept

```
public static void accept(OIStream in,
               Header ohead,
               long objID,
               FID fid,
               int id,
               Env env)
  throws java.io.IOException,
               java.lang.ClassNotFoundException,
               java.lang.InstantiationException,
               java.lang.IllegalAccessException,
               java.lang.NoSuchMethodException,
               java.lang.reflect.InvocationTargetException,
               CTLException
```

javaSys
Class CTL_Locator

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.CTL_Locator
```

public class **CTL_Locator**
extends RI

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	CTL_Locator()
public	CTL_Locator(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	get_rr(java.lang.String arg0, AnyObj arg1)
Location	get(java.lang.String arg0, AnyObj arg1)
java.lang.String	getBase()

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

CTL_Locator

```
public CTL_Locator()
```

CTL_Locator

```
public CTL_Locator(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

get

```
public Location get(java.lang.String arg0,
        AnyObj arg1)
```

get_rr

```
public rResult get_rr(java.lang.String arg0,
        AnyObj arg1)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class EvCalcCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.EvCalcCI
```

Direct Known Subclasses:
EvCalcRI, EvCalcLocal

---

public class **EvCalcCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	EvCalcCI()
public	EvCalcCI(Process proc)
public	EvCalcCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	barfoo_rr(int arg0, int arg1)
int	barfoo(int arg0, int arg1)
rResult	futzi_rr(TripleDash arg0)
double	futzi(TripleDash arg0)
java.lang.String	getBase()
rResult	last_rr(java.util.LinkedList arg0)

java.lang.String	last(java.util.LinkedList arg0)
PeerID	peerID()
static Process	proc()
rResult	send_rr(TripleDash arg0)
TripleDash	send(TripleDash arg0)
java.lang.String	toString()
static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.EvCalcCI self
```

Constructors

EvCalcCI

```
public EvCalcCI()
```

EvCalcCI

```
public EvCalcCI(Process proc)
```

(continued from last page)

EvCalcCI

```
public EvCalcCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

barfoo

```
public int barfoo(int arg0,
          int arg1)
```

---

barfoo_rr

```
public rResult barfoo_rr(int arg0,
          int arg1)
```

---

futzi

```
public double futzi(TripleDash arg0)
```

---

futzi_rr

```
public rResult futzi_rr(TripleDash arg0)
```

---

send

```
public TripleDash send(TripleDash arg0)
```

---

send_rr

```
public rResult send_rr(TripleDash arg0)
```

---

last

```
public java.lang.String last(java.util.LinkedList arg0)
```

last_rr

```
public rResult last_rr(java.util.LinkedList arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class EvCalcLocal

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.EvCalcCI
         ┣-javaSys.EvCalcLocal
```

public class **EvCalcLocal**
extends EvCalcCI

Field Summary

private	self

Fields inherited from class javaSys.EvCalcCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	EvCalcLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	barfoo_rr(int arg0, int arg1)
int	barfoo(int arg0, int arg1)
rResult	futzi_rr(TripleDash arg0)
double	futzi(TripleDash arg0)
java.lang.String	getBase()
rResult	last_rr(java.util.LinkedList arg0)
java.lang.String	last(java.util.LinkedList arg0)
rResult	send_rr(TripleDash arg0)

TripleDash	send(TripleDash arg0)

Methods inherited from class javaSys.EvCalcCI

accept, barfoo_rr, barfoo, futzi_rr, futzi, getBase, last_rr, last, peerID, proc, send_rr, send, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.EvCalc self
```

Constructors

EvCalcLocal

```
public EvCalcLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

barfoo

```
public int barfoo(int arg0,
          int arg1)
```

barfoo_rr

```
public rResult barfoo_rr(int arg0,
          int arg1)
```

(continued from last page)

futzi

```
public double futzi(TripleDash arg0)
```

futzi_rr

```
public rResult futzi_rr(TripleDash arg0)
```

send

```
public TripleDash send(TripleDash arg0)
```

send_rr

```
public rResult send_rr(TripleDash arg0)
```

last

```
public java.lang.String last(java.util.LinkedList arg0)
```

last_rr

```
public rResult last_rr(java.util.LinkedList arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class EvCalcRI

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.EvCalcCI
         ┣-javaSys.EvCalcRI
```

public class **EvCalcRI**
extends EvCalcCI

Fields inherited from class javaSys.EvCalcCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	EvCalcRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	barfoo_rr(int arg0, int arg1)
int	barfoo(int arg0, int arg1)
rResult	futzi_rr(TripleDash arg0)
double	futzi(TripleDash arg0)
java.lang.String	getBase()
rResult	last_rr(java.util.LinkedList arg0)
java.lang.String	last(java.util.LinkedList arg0)
rResult	send_rr(TripleDash arg0)
TripleDash	send(TripleDash arg0)

Methods inherited from class javaSys.EvCalcCI

accept, barfoo_rr, barfoo, futzi_rr, futzi, getBase, last_rr, last, peerID, proc, send_rr, send, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

EvCalcRI

```
public EvCalcRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

barfoo

```
public int barfoo(int arg0,
          int arg1)
```

barfoo_rr

```
public rResult barfoo_rr(int arg0,
          int arg1)
```

futzi

```
public double futzi(TripleDash arg0)
```

futzi_rr

```
public rResult futzi_rr(TripleDash arg0)
```

(continued from last page)

send

```
public TripleDash send(TripleDash arg0)
```

send_rr

```
public rResult send_rr(TripleDash arg0)
```

last

```
public java.lang.String last(java.util.LinkedList arg0)
```

last_rr

```
public rResult last_rr(java.util.LinkedList arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class EvilArrayTestCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.EvilArrayTestCI
```

Direct Known Subclasses:
EvilArrayTestRI, EvilArrayTestLocal

---

public class **EvilArrayTestCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	EvilArrayTestCI()
public	EvilArrayTestCI(Process proc)
public	EvilArrayTestCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	foo1_rr(int[] arg0)
int[]	foo1(int[] arg0)
rResult	foo2_rr(java.lang.String[] arg0)
java.lang.String[]	foo2(java.lang.String[] arg0)
rResult	foo3_rr(DoubleDash[] arg0)
DoubleDash[]	foo3(DoubleDash[] arg0)

java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
java.lang.String	toString()
static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.EvilArrayTestCI self
```

Constructors

EvilArrayTestCI

```
public EvilArrayTestCI()
```

EvilArrayTestCI

```
public EvilArrayTestCI(Process proc)
```

EvilArrayTestCI

```
public EvilArrayTestCI(java.lang.Object obj)
```

(continued from last page)

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

foo2

```
public java.lang.String[] foo2(java.lang.String[] arg0)
```

---

foo2_rr

```
public rResult foo2_rr(java.lang.String[] arg0)
```

---

foo1

```
public int[] foo1(int[] arg0)
```

---

foo1_rr

```
public rResult foo1_rr(int[] arg0)
```

---

foo3

```
public DoubleDash[] foo3(DoubleDash[] arg0)
```

---

foo3_rr

```
public rResult foo3_rr(DoubleDash[] arg0)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

(continued from last page)

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class EvilArrayTestLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.EvilArrayTestCI
         ┗-javaSys.EvilArrayTestLocal
```

public class **EvilArrayTestLocal**
extends EvilArrayTestCI

Field Summary

private	self

Fields inherited from class javaSys.EvilArrayTestCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	EvilArrayTestLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	foo1_rr(int[] arg0)
int[]	foo1(int[] arg0)
rResult	foo2_rr(java.lang.String[] arg0)
java.lang.String[]	foo2(java.lang.String[] arg0)
rResult	foo3_rr(DoubleDash[] arg0)
DoubleDash[]	foo3(DoubleDash[] arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.EvilArrayTestCI

accept, foo1_rr, foo1, foo2_rr, foo2, foo3_rr, foo3, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.EvilArrayTest self
```

Constructors

EvilArrayTestLocal

```
public EvilArrayTestLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

foo2

```
public java.lang.String[] foo2(java.lang.String[] arg0)
```

foo2_rr

```
public rResult foo2_rr(java.lang.String[] arg0)
```

foo1

```
public int[] foo1(int[] arg0)
```

(continued from last page)

foo1_rr

```
public rResult foo1_rr(int[] arg0)
```

---

foo3

```
public DoubleDash[] foo3(DoubleDash[] arg0)
```

---

foo3_rr

```
public rResult foo3_rr(DoubleDash[] arg0)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class EvilArrayTestRI

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.EvilArrayTestCI
         ┣-javaSys.EvilArrayTestRI
```

public class **EvilArrayTestRI**
extends EvilArrayTestCI

Fields inherited from class javaSys.EvilArrayTestCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	EvilArrayTestRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	foo1_rr(int[] arg0)
int[]	foo1(int[] arg0)
rResult	foo2_rr(java.lang.String[] arg0)
java.lang.String[]	foo2(java.lang.String[] arg0)
rResult	foo3_rr(DoubleDash[] arg0)
DoubleDash[]	foo3(DoubleDash[] arg0)
java.lang.String	getBase()

Methods inherited from class javaSys.EvilArrayTestCI
accept, foo1_rr, foo1, foo2_rr, foo2, foo3_rr, foo3, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

EvilArrayTestRI

```
public EvilArrayTestRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

foo2

```
public java.lang.String[] foo2(java.lang.String[] arg0)
```

foo2_rr

```
public rResult foo2_rr(java.lang.String[] arg0)
```

foo1

```
public int[] foo1(int[] arg0)
```

foo1_rr

```
public rResult foo1_rr(int[] arg0)
```

foo3

```
public DoubleDash[] foo3(DoubleDash[] arg0)
```

(continued from last page)

foo3_rr

```
public rResult foo3_rr(DoubleDash[] arg0)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class GroupCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.GroupCI
```

Direct Known Subclasses:
GroupRI, GroupLocal

---

public class **GroupCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	GroupCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
static void	recvException(java.lang.String arg0)
void	recvTermination(PeerID arg0, java.lang.String arg1)
static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.GroupCI self
```

Constructors

GroupCI

```
public GroupCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

recvTermination

```
public void recvTermination(PeerID arg0,
         java.lang.String arg1)
```

recvException

```
public static void recvException(java.lang.String arg0)
```

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

---

proc

```
protected static Process proc()
```

---

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

---

use

```
public static void use(Process prc)
```

javaSys
Class GroupLocal

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.GroupCI
         ┣-javaSys.GroupLocal
```

public class **GroupLocal**
extends GroupCI

Field Summary

private	self

Fields inherited from class javaSys.GroupCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	GroupLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
static void	recvException(java.lang.String arg0)
void	recvTermination(PeerID arg0, java.lang.String arg1)

Methods inherited from class javaSys.GroupCI

accept, getBase, peerID, proc, recvException, recvTermination, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private CTL.Group self
```

Constructors

GroupLocal

```
public GroupLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

recvTermination

```
public void recvTermination(PeerID arg0,
         java.lang.String arg1)
```

recvException

```
public static void recvException(java.lang.String arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class GroupRI

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.GroupCI
         ┗-javaSys.GroupRI
```

public class **GroupRI**
extends GroupCI

Fields inherited from class javaSys.GroupCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	GroupRI()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
static void	recvException(Process proc, java.lang.String arg0)
static void	recvException(java.lang.String arg0)
void	recvTermination(PeerID arg0, java.lang.String arg1)

Methods inherited from class javaSys.GroupCI
accept, getBase, peerID, proc, recvException, recvTermination, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

GroupRI

```
public GroupRI()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

recvTermination

```
public void recvTermination(PeerID arg0,
         java.lang.String arg1)
```

recvException

```
public static void recvException(java.lang.String arg0)
```

recvException

```
public static void recvException(Process proc,
         java.lang.String arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class HelloCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.HelloCI
```

Direct Known Subclasses:
HelloRI, HelloLocal

---

public class **HelloCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	HelloCI()
public	HelloCI(Process proc)
public	HelloCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
rResult	sayHello_rr()
java.lang.String	sayHello()
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.HelloCI self
```

Constructors

HelloCI

```
public HelloCI()
```

HelloCI

```
public HelloCI(Process proc)
```

HelloCI

```
public HelloCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

sayHello

```
public java.lang.String sayHello()
```

sayHello_rr

```
public rResult sayHello_rr()
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class HelloLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.HelloCI
         ┗-javaSys.HelloLocal
```

public class **HelloLocal**
extends HelloCI

Field Summary

private	self

Fields inherited from class javaSys.HelloCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	HelloLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	sayHello_rr()
java.lang.String	sayHello()

Methods inherited from class javaSys.HelloCI

accept, getBase, peerID, proc, sayHello_rr, sayHello, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.Hello self
```

Constructors

HelloLocal

```
public HelloLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

sayHello

```
public java.lang.String sayHello()
```

sayHello_rr

```
public rResult sayHello_rr()
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class HelloRI

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.HelloCI
         ┗-javaSys.HelloRI
```

public class **HelloRI**
extends HelloCI

Fields inherited from class javaSys.HelloCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	HelloRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	sayHello_rr()
java.lang.String	sayHello()

Methods inherited from class javaSys.HelloCI
accept, getBase, peerID, proc, sayHello_rr, sayHello, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

HelloRI

```
public HelloRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

sayHello

```
public java.lang.String sayHello()
```

---

sayHello_rr

```
public rResult sayHello_rr()
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class LinalgCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.LinalgCI
```

Direct Known Subclasses:
LinalgRI, LinalgLocal

---

public class **LinalgCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	LinalgCI()
public	LinalgCI(Process proc)
public	LinalgCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
rResult	solve_cholesky_rr(Tupel arg0, CArray arg1)
CArray	solve_cholesky(Tupel arg0, CArray arg1)
rResult	solve_HH_rr(Tupel arg0, CArray arg1)

CArray	solve_HH(Tupel arg0, CArray arg1)
rResult	solve_LU_rr(Tupel arg0, CArray arg1)
CArray	solve_LU(Tupel arg0, CArray arg1)
rResult	solve_QR_ls_rr(Tupel arg0, CArray arg1, CArray arg2)
CArray	solve_QR_ls(Tupel arg0, CArray arg1, CArray arg2)
rResult	solve_QR_rr(Tupel arg0, CArray arg1)
CArray	solve_QR(Tupel arg0, CArray arg1)
rResult	solve_QRPT_rr(Tupel arg0, CArray arg1)
CArray	solve_QRPT(Tupel arg0, CArray arg1)
rResult	solve_SV_rr(Tupel arg0, CArray arg1)
CArray	solve_SV(Tupel arg0, CArray arg1)
java.lang.String	toString()
static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.LinalgCI self
```

Constructors

(continued from last page)

LinalgCI

```
public LinalgCI()
```

LinalgCI

```
public LinalgCI(Process proc)
```

LinalgCI

```
public LinalgCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

solve_LU

```
public CArray solve_LU(Tupel arg0,
                       CArray arg1)
```

---

solve_LU_rr

```
public rResult solve_LU_rr(Tupel arg0,
                           CArray arg1)
```

---

solve_QR

```
public CArray solve_QR(Tupel arg0,
                       CArray arg1)
```

---

solve_QR_rr

```
public rResult solve_QR_rr(Tupel arg0,
                           CArray arg1)
```

(continued from last page)

solve_QR_ls

```
public CArray solve_QR_ls(Tupel arg0,
        CArray arg1,
        CArray arg2)
```

solve_QR_ls_rr

```
public rResult solve_QR_ls_rr(Tupel arg0,
        CArray arg1,
        CArray arg2)
```

solve_QRPT

```
public CArray solve_QRPT(Tupel arg0,
        CArray arg1)
```

solve_QRPT_rr

```
public rResult solve_QRPT_rr(Tupel arg0,
        CArray arg1)
```

solve_SV

```
public CArray solve_SV(Tupel arg0,
        CArray arg1)
```

solve_SV_rr

```
public rResult solve_SV_rr(Tupel arg0,
        CArray arg1)
```

solve_cholesky

```
public CArray solve_cholesky(Tupel arg0,
        CArray arg1)
```

solve_cholesky_rr

```
public rResult solve_cholesky_rr(Tupel arg0,
        CArray arg1)
```

(continued from last page)

solve_HH

```
public CArray solve_HH(Tupel arg0,
        CArray arg1)
```

solve_HH_rr

```
public rResult solve_HH_rr(Tupel arg0,
        CArray arg1)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class LinalgLocal

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.LinalgCI
         ┣-javaSys.LinalgLocal
```

public class **LinalgLocal**
extends LinalgCI

Field Summary

private	self

Fields inherited from class javaSys.LinalgCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	LinalgLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	solve_cholesky_rr(Tupel arg0, CArray arg1)
CArray	solve_cholesky(Tupel arg0, CArray arg1)
rResult	solve_HH_rr(Tupel arg0, CArray arg1)
CArray	solve_HH(Tupel arg0, CArray arg1)
rResult	solve_LU_rr(Tupel arg0, CArray arg1)
CArray	solve_LU(Tupel arg0, CArray arg1)
rResult	solve_QR_ls_rr(Tupel arg0, CArray arg1, CArray arg2)

CArray	solve_QR_ls(Tupel arg0, CArray arg1, CArray arg2)
rResult	solve_QR_rr(Tupel arg0, CArray arg1)
CArray	solve_QR(Tupel arg0, CArray arg1)
rResult	solve_QRPT_rr(Tupel arg0, CArray arg1)
CArray	solve_QRPT(Tupel arg0, CArray arg1)
rResult	solve_SV_rr(Tupel arg0, CArray arg1)
CArray	solve_SV(Tupel arg0, CArray arg1)

Methods inherited from class javaSys.LinalgCI

accept, getBase, peerID, proc, solve_cholesky_rr, solve_cholesky, solve_HH_rr, solve_HH, solve_LU_rr, solve_LU, solve_QR_ls_rr, solve_QR_ls, solve_QR_rr, solve_QR, solve_QRPT_rr, solve_QRPT, solve_SV_rr, solve_SV, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.Linalg self
```

Constructors

LinalgLocal

```
public LinalgLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

solve_LU

```
public CArray solve_LU(Tupel arg0,
                       CArray arg1)
```

solve_LU_rr

```
public rResult solve_LU_rr(Tupel arg0,
                           CArray arg1)
```

solve_QR

```
public CArray solve_QR(Tupel arg0,
                       CArray arg1)
```

solve_QR_rr

```
public rResult solve_QR_rr(Tupel arg0,
                           CArray arg1)
```

solve_QR_ls

```
public CArray solve_QR_ls(Tupel arg0,
                          CArray arg1,
                          CArray arg2)
```

solve_QR_ls_rr

```
public rResult solve_QR_ls_rr(Tupel arg0,
                              CArray arg1,
                              CArray arg2)
```

solve_QRPT

```
public CArray solve_QRPT(Tupel arg0,
                         CArray arg1)
```

solve_QRPT_rr

```
public rResult solve_QRPT_rr(Tupel arg0,
                             CArray arg1)
```

(continued from last page)

solve_SV

```
public CArray solve_SV(Tupel arg0,
         CArray arg1)
```

solve_SV_rr

```
public rResult solve_SV_rr(Tupel arg0,
         CArray arg1)
```

solve_cholesky

```
public CArray solve_cholesky(Tupel arg0,
         CArray arg1)
```

solve_cholesky_rr

```
public rResult solve_cholesky_rr(Tupel arg0,
         CArray arg1)
```

solve_HH

```
public CArray solve_HH(Tupel arg0,
         CArray arg1)
```

solve_HH_rr

```
public rResult solve_HH_rr(Tupel arg0,
         CArray arg1)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class LinalgRI

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.LinalgCI
         ┣-javaSys.LinalgRI
```

public class **LinalgRI**
extends LinalgCI

Fields inherited from class javaSys.LinalgCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	LinalgRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	solve_cholesky_rr(Tupel arg0, CArray arg1)
CArray	solve_cholesky(Tupel arg0, CArray arg1)
rResult	solve_HH_rr(Tupel arg0, CArray arg1)
CArray	solve_HH(Tupel arg0, CArray arg1)
rResult	solve_LU_rr(Tupel arg0, CArray arg1)
CArray	solve_LU(Tupel arg0, CArray arg1)
rResult	solve_QR_ls_rr(Tupel arg0, CArray arg1, CArray arg2)
CArray	solve_QR_ls(Tupel arg0, CArray arg1, CArray arg2)
rResult	solve_QR_rr(Tupel arg0, CArray arg1)

CArray	solve_QR(Tupel arg0, CArray arg1)
rResult	solve_QRPT_rr(Tupel arg0, CArray arg1)
CArray	solve_QRPT(Tupel arg0, CArray arg1)
rResult	solve_SV_rr(Tupel arg0, CArray arg1)
CArray	solve_SV(Tupel arg0, CArray arg1)

Methods inherited from class javaSys.LinalgCI

accept, getBase, peerID, proc, solve_cholesky_rr, solve_cholesky, solve_HH_rr, solve_HH, solve_LU_rr, solve_LU, solve_QR_ls_rr, solve_QR_ls, solve_QR_rr, solve_QR, solve_QRPT_rr, solve_QRPT, solve_SV_rr, solve_SV, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

LinalgRI

```
public LinalgRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

solve_LU

```
public CArray solve_LU(Tupel arg0,
                       CArray arg1)
```

solve_LU_rr

```
public rResult solve_LU_rr(Tupel arg0,
                           CArray arg1)
```

solve_QR

```
public CArray solve_QR(Tupel arg0,
                       CArray arg1)
```

solve_QR_rr

```
public rResult solve_QR_rr(Tupel arg0,
                           CArray arg1)
```

solve_QR_ls

```
public CArray solve_QR_ls(Tupel arg0,
                          CArray arg1,
                          CArray arg2)
```

solve_QR_ls_rr

```
public rResult solve_QR_ls_rr(Tupel arg0,
                              CArray arg1,
                              CArray arg2)
```

solve_QRPT

```
public CArray solve_QRPT(Tupel arg0,
                         CArray arg1)
```

solve_QRPT_rr

```
public rResult solve_QRPT_rr(Tupel arg0,
                             CArray arg1)
```

solve_SV

```
public CArray solve_SV(Tupel arg0,
                       CArray arg1)
```

solve_SV_rr

```
public rResult solve_SV_rr(Tupel arg0,
                           CArray arg1)
```

(continued from last page)

solve_cholesky

```
public CArray solve_cholesky(Tupel arg0,
        CArray arg1)
```

---

solve_cholesky_rr

```
public rResult solve_cholesky_rr(Tupel arg0,
        CArray arg1)
```

---

solve_HH

```
public CArray solve_HH(Tupel arg0,
        CArray arg1)
```

---

solve_HH_rr

```
public rResult solve_HH_rr(Tupel arg0,
        CArray arg1)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class MatheCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.MatheCI
```

Direct Known Subclasses:
MatheRI, MatheLocal

---

public class **MatheCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	MatheCI()
public	MatheCI(Process proc)
public	MatheCI(java.lang.String arg0)
public	MatheCI(Process proc, java.lang.String arg0)
public	MatheCI(java.lang.String arg0, boolean arg1)
public	MatheCI(Process proc, java.lang.String arg0, boolean arg1)
public	MatheCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_a_rr(int[] arg0)
int	add_a(int[] arg0)

rResult	add_rr(java.lang.Integer arg0, java.lang.Integer arg1)
int	add(java.lang.Integer arg0, java.lang.Integer arg1)
rResult	div_rr(int arg0, int arg1)
int	div(int arg0, int arg1)
static rResult	foobar_rr()
static java.lang.String	foobar()
java.lang.String	getBase()
rResult	getFoo_rr()
java.lang.String	getFoo()
rResult	log_rr(double arg0)
rResult	log_rr(float arg0)
double	log(double arg0)
float	log(float arg0)
rResult	loglog_rr(DoubleDash arg0)
DoubleDash	loglog(DoubleDash arg0)
rResult	mul_rr(int arg0, int arg1)
int	mul(int arg0, int arg1)
PeerID	peerID()
static Process	proc()
void	setFoo(java.lang.String arg0)
rResult	sub_rr(int arg0, int arg1)
int	sub(int arg0, int arg1)
java.lang.String	toString()
static void	use(Process prc)

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.MatheCI self
```

Constructors

MatheCI

```
public MatheCI()
```

MatheCI

```
public MatheCI(Process proc)
```

MatheCI

```
public MatheCI(java.lang.String arg0)
```

MatheCI

```
public MatheCI(Process proc,
               java.lang.String arg0)
```

MatheCI

```
public MatheCI(java.lang.String arg0,
               boolean arg1)
```

(continued from last page)

MatheCI

```
public MatheCI(Process proc,
               java.lang.String arg0,
               boolean arg1)
```

MatheCI

```
public MatheCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

add

```
public int add(java.lang.Integer arg0,
         java.lang.Integer arg1)
```

add_rr

```
public rResult add_rr(java.lang.Integer arg0,
         java.lang.Integer arg1)
```

foobar

```
public static java.lang.String foobar()
```

foobar_rr

```
public static rResult foobar_rr()
```

getFoo

```
public java.lang.String getFoo()
```

(continued from last page)

getFoo_rr

```
public rResult getFoo_rr()
```

setFoo

```
public void setFoo(java.lang.String arg0)
```

mul

```
public int mul(int arg0,
               int arg1)
```

mul_rr

```
public rResult mul_rr(int arg0,
               int arg1)
```

div

```
public int div(int arg0,
               int arg1)
```

div_rr

```
public rResult div_rr(int arg0,
               int arg1)
```

loglog

```
public DoubleDash loglog(DoubleDash arg0)
```

loglog_rr

```
public rResult loglog_rr(DoubleDash arg0)
```

add_a

```
public int add_a(int[] arg0)
```

(continued from last page)

add_a_rr

```
public rResult add_a_rr(int[] arg0)
```

---

log

```
public double log(double arg0)
```

---

log_rr

```
public rResult log_rr(double arg0)
```

---

log

```
public float log(float arg0)
```

---

log_rr

```
public rResult log_rr(float arg0)
```

---

sub

```
public int sub(int arg0,
         int arg1)
```

---

sub_rr

```
public rResult sub_rr(int arg0,
         int arg1)
```

---

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class MatheLocal

```
java.lang.Object
   |-CTL.RI
      |-javaSys.MatheCI
         |-javaSys.MatheLocal
```

public class **MatheLocal**
extends MatheCI

Field Summary

private	self

Fields inherited from class javaSys.MatheCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	MatheLocal()
public	MatheLocal(java.lang.String arg0)
public	MatheLocal(java.lang.String arg0, boolean arg1)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_a_rr(int[] arg0)
int	add_a(int[] arg0)
rResult	add_rr(java.lang.Integer arg0, java.lang.Integer arg1)
int	add(java.lang.Integer arg0, java.lang.Integer arg1)
rResult	div_rr(int arg0, int arg1)
int	div(int arg0, int arg1)

static rResult	foobar_rr()
static java.lang.String	foobar()
java.lang.String	getBase()
rResult	getFoo_rr()
java.lang.String	getFoo()
rResult	log_rr(double arg0)
rResult	log_rr(float arg0)
double	log(double arg0)
float	log(float arg0)
rResult	loglog_rr(DoubleDash arg0)
DoubleDash	loglog(DoubleDash arg0)
rResult	mul_rr(int arg0, int arg1)
int	mul(int arg0, int arg1)
void	setFoo(java.lang.String arg0)
rResult	sub_rr(int arg0, int arg1)
int	sub(int arg0, int arg1)

Methods inherited from class javaSys.MatheCI

accept, add_a_rr, add_a, add_rr, add, div_rr, div, foobar_rr, foobar, getBase, getFoo_rr, getFoo, log_rr, log_rr, log, log, loglog_rr, loglog, mul_rr, mul, peerID, proc, setFoo, sub_rr, sub, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

(continued from last page)

self

```
private Impl.Mathe self
```

Constructors

MatheLocal

```
public MatheLocal()
```

MatheLocal

```
public MatheLocal(java.lang.String arg0)
```

MatheLocal

```
public MatheLocal(java.lang.String arg0,
                  boolean arg1)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

add

```
public int add(java.lang.Integer arg0,
         java.lang.Integer arg1)
```

---

add_rr

```
public rResult add_rr(java.lang.Integer arg0,
        java.lang.Integer arg1)
```

---

foobar

```
public static java.lang.String foobar()
```

(continued from last page)

foobar_rr

```
public static rResult foobar_rr()
```

getFoo

```
public java.lang.String getFoo()
```

getFoo_rr

```
public rResult getFoo_rr()
```

setFoo

```
public void setFoo(java.lang.String arg0)
```

mul

```
public int mul(int arg0,
               int arg1)
```

mul_rr

```
public rResult mul_rr(int arg0,
               int arg1)
```

div

```
public int div(int arg0,
               int arg1)
```

div_rr

```
public rResult div_rr(int arg0,
               int arg1)
```

loglog

```
public DoubleDash loglog(DoubleDash arg0)
```

(continued from last page)

loglog_rr

```
public rResult loglog_rr(DoubleDash arg0)
```

add_a

```
public int add_a(int[] arg0)
```

add_a_rr

```
public rResult add_a_rr(int[] arg0)
```

log

```
public double log(double arg0)
```

log_rr

```
public rResult log_rr(double arg0)
```

log

```
public float log(float arg0)
```

log_rr

```
public rResult log_rr(float arg0)
```

sub

```
public int sub(int arg0,
         int arg1)
```

sub_rr

```
public rResult sub_rr(int arg0,
         int arg1)
```

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class MatheRI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.MatheCI
         |
         +-javaSys.MatheRI
```

public class **MatheRI**
extends MatheCI

Fields inherited from class javaSys.MatheCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	MatheRI(Process proc)
public	MatheRI(Process proc, java.lang.String arg0)
public	MatheRI(Process proc, java.lang.String arg0, boolean arg1)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
rResult	add_a_rr(int[] arg0)
int	add_a(int[] arg0)
rResult	add_rr(java.lang.Integer arg0, java.lang.Integer arg1)
int	add(java.lang.Integer arg0, java.lang.Integer arg1)
rResult	div_rr(int arg0, int arg1)
int	div(int arg0, int arg1)
static rResult	foobar_rr()
static rResult	foobar_rr(Process proc)

static java.lang.String	foobar()
static java.lang.String	foobar(Process proc)
java.lang.String	getBase()
rResult	getFoo_rr()
java.lang.String	getFoo()
rResult	log_rr(double arg0)
rResult	log_rr(float arg0)
double	log(double arg0)
float	log(float arg0)
rResult	loglog_rr(DoubleDash arg0)
DoubleDash	loglog(DoubleDash arg0)
rResult	mul_rr(int arg0, int arg1)
int	mul(int arg0, int arg1)
void	setFoo(java.lang.String arg0)
rResult	sub_rr(int arg0, int arg1)
int	sub(int arg0, int arg1)

Methods inherited from class javaSys.MatheCI

accept, add_a_rr, add_a, add_rr, add, div_rr, div, foobar_rr, foobar, getBase, getFoo_rr, getFoo, log_rr, log_rr, log, log, loglog_rr, loglog, mul_rr, mul, peerID, proc, setFoo, sub_rr, sub, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

(continued from last page)

MatheRI

```
public MatheRI(Process proc)
```

MatheRI

```
public MatheRI(Process proc,
               java.lang.String arg0)
```

MatheRI

```
public MatheRI(Process proc,
               java.lang.String arg0,
               boolean arg1)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

add

```
public int add(java.lang.Integer arg0,
         java.lang.Integer arg1)
```

---

add_rr

```
public rResult add_rr(java.lang.Integer arg0,
        java.lang.Integer arg1)
```

---

foobar

```
public static java.lang.String foobar()
```

---

foobar

```
public static java.lang.String foobar(Process proc)
```

---

foobar_rr

```
public static rResult foobar_rr()
```

(continued from last page)

foobar_rr

```
public static rResult foobar_rr(Process proc)
```

getFoo

```
public java.lang.String getFoo()
```

getFoo_rr

```
public rResult getFoo_rr()
```

setFoo

```
public void setFoo(java.lang.String arg0)
```

mul

```
public int mul(int arg0,
               int arg1)
```

mul_rr

```
public rResult mul_rr(int arg0,
               int arg1)
```

div

```
public int div(int arg0,
               int arg1)
```

div_rr

```
public rResult div_rr(int arg0,
               int arg1)
```

loglog

```
public DoubleDash loglog(DoubleDash arg0)
```

(continued from last page)

loglog_rr

```
public rResult loglog_rr(DoubleDash arg0)
```

add_a

```
public int add_a(int[] arg0)
```

add_a_rr

```
public rResult add_a_rr(int[] arg0)
```

log

```
public double log(double arg0)
```

log_rr

```
public rResult log_rr(double arg0)
```

log

```
public float log(float arg0)
```

log_rr

```
public rResult log_rr(float arg0)
```

sub

```
public int sub(int arg0,
               int arg1)
```

sub_rr

```
public rResult sub_rr(int arg0,
               int arg1)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class PiSimpleCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.PiSimpleCI
```

Direct Known Subclasses:
PiSimpleRI, PiSimpleLocal

---

public class **PiSimpleCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	PiSimpleCI()
public	PiSimpleCI(Process proc)
public	PiSimpleCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
static rResult	calc_rr(double arg0, int arg1, int arg2)
static double	calc(double arg0, int arg1, int arg2)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
java.lang.String	toString()

static void	use(Process prc)

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

```
private static CTL.Process proc2
```

self

```
private javaSys.PiSimpleCI self
```

Constructors

PiSimpleCI

```
public PiSimpleCI()
```

PiSimpleCI

```
public PiSimpleCI(Process proc)
```

PiSimpleCI

```
public PiSimpleCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

(continued from last page)

calc

```
public static double calc(double arg0,
         int arg1,
         int arg2)
```

calc_rr

```
public static rResult calc_rr(double arg0,
         int arg1,
         int arg2)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class PiSimpleLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.PiSimpleCI
         ┗-javaSys.PiSimpleLocal
```

public class **PiSimpleLocal**
extends PiSimpleCI

Field Summary

private	self

Fields inherited from class javaSys.PiSimpleCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	PiSimpleLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
static rResult	calc_rr(double arg0, int arg1, int arg2)
static double	calc(double arg0, int arg1, int arg2)
java.lang.String	getBase()

Methods inherited from class javaSys.PiSimpleCI

accept, calc_rr, calc, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.PiSimple self
```

Constructors

PiSimpleLocal

```
public PiSimpleLocal()
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

calc

```
public static double calc(double arg0,
         int arg1,
         int arg2)
```

calc_rr

```
public static rResult calc_rr(double arg0,
         int arg1,
         int arg2)
```

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class PiSimpleRI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.PiSimpleCI
         |
         +-javaSys.PiSimpleRI
```

public class **PiSimpleRI**
extends PiSimpleCI

Fields inherited from class javaSys.PiSimpleCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	PiSimpleRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
static rResult	calc_rr(double arg0, int arg1, int arg2)
static rResult	calc_rr(Process proc, double arg0, int arg1, int arg2)
static double	calc(double arg0, int arg1, int arg2)
static double	calc(Process proc, double arg0, int arg1, int arg2)
java.lang.String	getBase()

Methods inherited from class javaSys.PiSimpleCI
accept, calc_rr, calc, getBase, peerID, proc, toString, use

Methods inherited from class CTL.RI
getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

PiSimpleRI

```
public PiSimpleRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

calc

```
public static double calc(double arg0,
         int arg1,
         int arg2)
```

calc

```
public static double calc(Process proc,
         double arg0,
         int arg1,
         int arg2)
```

calc_rr

```
public static rResult calc_rr(double arg0,
         int arg1,
         int arg2)
```

calc_rr

```
public static rResult calc_rr(Process proc,
         double arg0,
         int arg1,
         int arg2)
```

(continued from last page)

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

javaSys
Class SendCI

```
java.lang.Object
   |
   +-CTL.RI
      |
      +-javaSys.SendCI
```

Direct Known Subclasses:
SendRI, SendLocal

---

public class **SendCI**
extends RI

Field Summary

private static	proc2
private	self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	SendCI()
public	SendCI(Process proc)
public	SendCI(java.lang.Object obj)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
PeerID	peerID()
static Process	proc()
rResult	send_rr(boolean[] arg0)
rResult	send_rr(byte[] arg0)
rResult	send_rr(char[] arg0)

rResult	send_rr(double[] arg0)
rResult	send_rr(float[] arg0)
rResult	send_rr(int[] arg0)
rResult	send_rr(long[] arg0)
rResult	send_rr(short[] arg0)
boolean[]	send(boolean[] arg0)
byte[]	send(byte[] arg0)
char[]	send(char[] arg0)
double[]	send(double[] arg0)
float[]	send(float[] arg0)
int[]	send(int[] arg0)
long[]	send(long[] arg0)
short[]	send(short[] arg0)
java.lang.String	toString()
static void	use(Process prc)

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

proc2

private static CTL.Process **proc2**

(continued from last page)

self

```
private javaSys.SendCI self
```

Constructors

SendCI

```
public SendCI()
```

SendCI

```
public SendCI(Process proc)
```

SendCI

```
public SendCI(java.lang.Object obj)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

send

```
public short[] send(short[] arg0)
```

---

send_rr

```
public rResult send_rr(short[] arg0)
```

---

send

```
public boolean[] send(boolean[] arg0)
```

---

send_rr

```
public rResult send_rr(boolean[] arg0)
```

send

```
public byte[] send(byte[] arg0)
```

send_rr

```
public rResult send_rr(byte[] arg0)
```

send

```
public char[] send(char[] arg0)
```

send_rr

```
public rResult send_rr(char[] arg0)
```

send

```
public double[] send(double[] arg0)
```

send_rr

```
public rResult send_rr(double[] arg0)
```

send

```
public float[] send(float[] arg0)
```

send_rr

```
public rResult send_rr(float[] arg0)
```

send

```
public int[] send(int[] arg0)
```

send_rr

```
public rResult send_rr(int[] arg0)
```

(continued from last page)

send

```
public long[] send(long[] arg0)
```

send_rr

```
public rResult send_rr(long[] arg0)
```

accept

```
public static void accept(OIStream in,
          Header ohead,
          long objID,
          FID fid,
          int id,
          Env env)
  throws java.io.IOException,
          java.lang.ClassNotFoundException,
          java.lang.InstantiationException,
          java.lang.IllegalAccessException,
          java.lang.NoSuchMethodException,
          java.lang.reflect.InvocationTargetException,
          CTLException
```

proc

```
protected static Process proc()
```

peerID

```
public PeerID peerID()
```

Retrieve the PeerID of this object

use

```
public static void use(Process prc)
```

toString

```
public java.lang.String toString()
```

javaSys
Class SendLocal

```
java.lang.Object
   ┗-CTL.RI
      ┗-javaSys.SendCI
         ┗-javaSys.SendLocal
```

public class **SendLocal**
extends SendCI

Field Summary

private	self

Fields inherited from class javaSys.SendCI

proc2, self

Fields inherited from class CTL.RI

home, objID, proc

Constructor Summary

public	SendLocal()

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	send_rr(boolean[] arg0)
rResult	send_rr(byte[] arg0)
rResult	send_rr(char[] arg0)
rResult	send_rr(double[] arg0)
rResult	send_rr(float[] arg0)
rResult	send_rr(int[] arg0)
rResult	send_rr(long[] arg0)

rResult	send_rr(short[] arg0)
boolean[]	send(boolean[] arg0)
byte[]	send(byte[] arg0)
char[]	send(char[] arg0)
double[]	send(double[] arg0)
float[]	send(float[] arg0)
int[]	send(int[] arg0)
long[]	send(long[] arg0)
short[]	send(short[] arg0)

Methods inherited from class javaSys.SendCI

accept, getBase, peerID, proc, send_rr, send_rr, send_rr, send_rr, send_rr, send_rr, send_rr, send_rr, send, send, send, send, send, send, send, send, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

self

```
private Impl.Send self
```

Constructors

SendLocal

```
public SendLocal()
```

Methods

(continued from last page)

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

---

send

```
public short[] send(short[] arg0)
```

---

send_rr

```
public rResult send_rr(short[] arg0)
```

---

send

```
public boolean[] send(boolean[] arg0)
```

---

send_rr

```
public rResult send_rr(boolean[] arg0)
```

---

send

```
public byte[] send(byte[] arg0)
```

---

send_rr

```
public rResult send_rr(byte[] arg0)
```

---

send

```
public char[] send(char[] arg0)
```

---

send_rr

```
public rResult send_rr(char[] arg0)
```

---

send

```
public double[] send(double[] arg0)
```

(continued from last page)

send_rr

```
public rResult send_rr(double[] arg0)
```

send

```
public float[] send(float[] arg0)
```

send_rr

```
public rResult send_rr(float[] arg0)
```

send

```
public int[] send(int[] arg0)
```

send_rr

```
public rResult send_rr(int[] arg0)
```

send

```
public long[] send(long[] arg0)
```

send_rr

```
public rResult send_rr(long[] arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

(continued from last page)

javaSys
Class SendRI

```
java.lang.Object
   ┣-CTL.RI
      ┣-javaSys.SendCI
         ┣-javaSys.SendRI
```

public class **SendRI**
extends SendCI

Fields inherited from class javaSys.SendCI
proc2, self

Fields inherited from class CTL.RI
home, objID, proc

Constructor Summary

public	SendRI(Process proc)

Method Summary

static void	accept(OIStream in, Header ohead, long objID, FID fid, int id, Env env)
java.lang.String	getBase()
rResult	send_rr(boolean[] arg0)
rResult	send_rr(byte[] arg0)
rResult	send_rr(char[] arg0)
rResult	send_rr(double[] arg0)
rResult	send_rr(float[] arg0)
rResult	send_rr(int[] arg0)
rResult	send_rr(long[] arg0)
rResult	send_rr(short[] arg0)
boolean[]	send(boolean[] arg0)

byte[]	send(byte[] arg0)
char[]	send(char[] arg0)
double[]	send(double[] arg0)
float[]	send(float[] arg0)
int[]	send(int[] arg0)
long[]	send(long[] arg0)
short[]	send(short[] arg0)

Methods inherited from class javaSys.SendCI

accept, getBase, peerID, proc, send_rr, send_rr, send_rr, send_rr, send_rr, send_rr, send_rr, send_rr, send, send, send, send, send, send, send, send, toString, use

Methods inherited from class CTL.RI

getBase, objID, peerID, proc, setObjID, setPeerID, use

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

SendRI

```
public SendRI(Process proc)
```

Methods

getBase

```
public java.lang.String getBase()
```

Retrieve the implementation class of this remote interface

send

```
public short[] send(short[] arg0)
```

(continued from last page)

send_rr

public rResult **send_rr**(short[] arg0)

---

send

public boolean[] **send**(boolean[] arg0)

---

send_rr

public rResult **send_rr**(boolean[] arg0)

---

send

public byte[] **send**(byte[] arg0)

---

send_rr

public rResult **send_rr**(byte[] arg0)

---

send

public char[] **send**(char[] arg0)

---

send_rr

public rResult **send_rr**(char[] arg0)

---

send

public double[] **send**(double[] arg0)

---

send_rr

public rResult **send_rr**(double[] arg0)

---

send

public float[] **send**(float[] arg0)

(continued from last page)

send_rr

```
public rResult send_rr(float[] arg0)
```

send

```
public int[] send(int[] arg0)
```

send_rr

```
public rResult send_rr(int[] arg0)
```

send

```
public long[] send(long[] arg0)
```

send_rr

```
public rResult send_rr(long[] arg0)
```

accept

```
public static void accept(OIStream in,
         Header ohead,
         long objID,
         FID fid,
         int id,
         Env env)
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.NoSuchMethodException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Package
NCLib

NCLib
Class Classes

```
java.lang.Object
   |
   +-NCLib.Classes
```

public class **Classes**
extends java.lang.Object

Field Summary

private static	blacklist Blacklist of classes with unwanted code in their static-Block

Constructor Summary

public	Classes()

Method Summary

static java.util.LinkedList	getClasses()
static java.util.LinkedList	getClasses(java.lang.String pkg)
static java.util.LinkedList	getDirectoriesFromJAR(java.lang.String fname)
static java.util.LinkedList	getPackages()
static java.util.LinkedList	getPackagesFromClasspath()
static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

blacklist

```
private static java.util.LinkedList blacklist
```

Blacklist of classes with unwanted code in their static-Block

(continued from last page)

Constructors

Classes

public **Classes**()

Methods

getClasses

public static java.util.LinkedList **getClasses**()

---

getClasses

public static java.util.LinkedList **getClasses**(java.lang.String pkg)

---

getPackagesFromClasspath

private static java.util.LinkedList **getPackagesFromClasspath**()

---

getDirectoriesFromJAR

private static java.util.LinkedList **getDirectoriesFromJAR**(java.lang.String fname)

---

getPackages

private static java.util.LinkedList **getPackages**()

---

main

public static void **main**(java.lang.String[] args)

NCLib
Class Files

```
java.lang.Object
   |
   +-NCLib.Files
```

public class **Files**
extends java.lang.Object

Various helper functions concerning files

Constructor Summary

public	Files()

Method Summary

static void	changePermissions(java.lang.String perms, java.lang.String fname) Change the permissions of a file (Unix-only, needs chmod(1))
static void	main(java.lang.String[] args) Test routine
static void	mkdirOrDie(java.lang.String dirname) Attempt to create a directory and exit the program if it isn't possible
static java.lang.String	readAll(java.lang.String fname) Read a whole file in at once
static void	symlink(java.lang.String src, java.lang.String dest) Create a symbolic link (Unix-only, needs ln(1))
static void	writeAll(java.lang.String fname, java.lang.String content) Write a whole file at once

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Files

public **Files**()

Methods

(continued from last page)

readAll

```
public static java.lang.String readAll(java.lang.String fname)
```

Read a whole file in at once

Parameters:
`fname` - Filename

Returns:
The file's contents

---

writeAll

```
public static void writeAll(java.lang.String fname,
         java.lang.String content)
```

Write a whole file at once

Parameters:
`fname` - Filename of the file to write
`content` - What to write to the file

---

mkdirOrDie

```
public static void mkdirOrDie(java.lang.String dirname)
```

Attempt to create a directory and exit the program if it isn't possible

Parameters:
`dirname` - Name of the directory

---

symlink

```
public static void symlink(java.lang.String src,
         java.lang.String dest)
```

Create a symbolic link (Unix-only, needs ln(1))

Parameters:
`src` - Source filename
`dest` - Destination filename

---

changePermissions

```
public static void changePermissions(java.lang.String perms,
         java.lang.String fname)
```

Change the permissions of a file (Unix-only, needs chmod(1))

Parameters:
`perms` - Permissions
`fname` - Filename

---

main

```
public static void main(java.lang.String[] args)
```

(continued from last page)

Test routine

NCLib
Class Process

```
java.lang.Object
   |
   +-NCLib.Process
```

public class **Process**
extends java.lang.Object

Constructor Summary

public	Process()

Method Summary

static java.lang.String	exec(java.lang.String cmd) Execute a command (system() equivalent)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Process

```
public Process()
```

Methods

exec

```
public static java.lang.String exec(java.lang.String cmd)
  throws java.io.IOException
```

Execute a command (system() equivalent)

Parameters:
`cmd` - The command to execute

Returns:
Everything that was written to stdout and stderr by the executed process

NCLib
Class Strings

```
java.lang.Object
   |
   +-NCLib.Strings
```

public class **Strings**
extends java.lang.Object

Various helper functions concerning strings

Constructor Summary

public	Strings()

Method Summary

static void	main(java.lang.String[] args) Test routine
static java.util.LinkedList	strList(java.lang.String[] args) Generate a linked list from a bunch of strings

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Strings

`public` **`Strings`**`()`

Methods

strList

`public static java.util.LinkedList` **`strList`**`(java.lang.String[] args)`

Generate a linked list from a bunch of strings

Parameters:
`args` - A bunch of strings

Returns:
LinkedList containing the bunch of strings

(continued from last page)

main

```
public static void main(java.lang.String[] args)
```

Test routine

NCLib
Class Template

```
java.lang.Object
   |
   +-NCLib.Template
```

public class **Template**
extends java.lang.Object

Implementation of a simple file templating mechanism

Field Summary

private	input Contents of the input file
private	map Map of the replaceables

Constructor Summary

public	Template(java.lang.String fname) Default constructor

Method Summary

java.util.Set	fields() Returns a set of all keywords found in the input file
static void	main(java.lang.String[] args) Test routine
boolean	set(java.lang.String key, java.lang.String value) Set a string as replacement for a specific keyword
java.lang.String	toString() Retrieve a string representation of this object
void	write(java.lang.String fname) Write the resulting file

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

input

`private java.lang.String` **`input`**

(continued from last page)

Contents of the input file

---

map

```
private java.util.HashMap map
```

Map of the replaceables

Constructors

Template

```
public Template(java.lang.String fname)
```

Default constructor

Parameters:

`fname` - Filename of the input file

Methods

fields

```
public java.util.Set fields()
```

Returns a set of all keywords found in the input file

Returns:

The set, motherfucker!

---

set

```
public boolean set(java.lang.String key,
          java.lang.String value)
```

Set a string as replacement for a specific keyword

Parameters:

`key` - The keyword

`value` - The replacement string (oh, the surprise!)

Returns:

True if the keyword was in the set of keywords found in the input file, false otherwise (and no replacing then, of course)

---

toString

```
public java.lang.String toString()
```

Retrieve a string representation of this object

Returns:

The string

---

write

```
public void write(java.lang.String fname)
```

(continued from last page)

Write the resulting file

Parameters:

`fname` - Filename of the destination file

main

```
public static void main(java.lang.String[] args)
```

Test routine

Package
ReflWrap

ReflWrap
Class ByteCode

```
java.lang.Object
   |
   +-ReflWrap.ByteCode
```

public class **ByteCode**
extends java.lang.Object

Wrapper around the BCEL

Constructor Summary

public	ByteCode()

Method Summary

static java.util.LinkedList	getMethods(java.lang.String klass) Get a list of methods declared in a certain class
static java.util.LinkedList	getParameters(java.lang.String klass, int fid) Get a list of parameters a certain function takes
static TypeTree	getRetVal(java.lang.String klass, int fid) Get the return value of a certain function
static java.lang.String	getSign(org.apache.bcel.classfile.Method m) Parse the 'signature' of a method
static java.util.LinkedList	handleMethod(org.apache.bcel.classfile.Method m) Helper function
static boolean	matches(java.lang.String str, java.lang.String regexp) Check whether a regular expression matches a string
static java.util.LinkedList	params(java.lang.String types) Helper function
static java.lang.String	retval(java.lang.String returns) Helper function
static java.lang.String	sed(java.lang.String input, java.lang.String pat, java.lang.String repl) Sed-like search-and-replace for Strings
static java.lang.String	unclassify(java.lang.String str) Convert all fully-qualified names to normal names

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

ByteCode

```
public ByteCode()
```

Methods

sed

```
public static java.lang.String sed(java.lang.String input,
         java.lang.String pat,
         java.lang.String repl)
```

Sed-like search-and-replace for Strings

Parameters:

`input` - String to work on
`pat` - Pattern to look for
`repl` - Replacement

Returns:

Modified string

---

params

```
private static java.util.LinkedList params(java.lang.String types)
```

Helper function

Parameters:

`types` - List of types

Returns:

List of types

---

retval

```
private static java.lang.String retval(java.lang.String returns)
```

Helper function

Parameters:

`returns` - Return value

Returns:

Return value

---

matches

```
public static boolean matches(java.lang.String str,
         java.lang.String regexp)
```

Check whether a regular expression matches a string

Parameters:

(continued from last page)

`str` - String
`regexp` - Regular expression

Returns:
True if matching, false if not.

---

unclassify

```
public static java.lang.String unclassify(java.lang.String str)
```

Convert all fully-qualified names to normal names

Parameters:
`str` - Function declaration

Returns:
Modified function declaration

---

getMethods

```
public static java.util.LinkedList getMethods(java.lang.String klass)
```

Get a list of methods declared in a certain class

Parameters:
`klass` - Fully-qualified class name

Returns:
List of methods

---

getParameters

```
public static java.util.LinkedList getParameters(java.lang.String klass,
         int fid)
```

Get a list of parameters a certain function takes

Parameters:
`klass` - Fully-qualified class name
`fid` - ID of the function

Returns:
List of parameter types

---

getRetVal

```
public static TypeTree getRetVal(java.lang.String klass,
         int fid)
```

Get the return value of a certain function

Parameters:
`klass` - Fully-qualified class name
`fid` - Function ID

Returns:
Return value type

(continued from last page)

getSign

```
private static java.lang.String getSign(org.apache.bcel.classfile.Method m)
```

Parse the 'signature' of a method

Parameters:
`m` - Method

Returns:
Parsed signature

---

handleMethod

```
private static java.util.LinkedList handleMethod(org.apache.bcel.classfile.Method m)
```

Helper function

Parameters:
`m` - Method

Returns:
List of types

ReflWrap
Class ClassInfo

```
java.lang.Object
   |
   +-ReflWrap.ClassInfo
```

public class **ClassInfo**
extends java.lang.Object

Wrapper around java.lang.Class Retrieve information about classes at runtime.

Field Summary

private	`fqcn` Fully qualified name of the class
private	`klasse` The underlying class
private	`m` Methods in original order
private	`m_ord` Methods in correct order according to the interface definition
private	`name` Prettified name of the class

Constructor Summary

public	`ClassInfo(java.lang.String FQCN)` Constructor from a fully-qualified classname.
public	`ClassInfo(java.lang.Class klasse)` Constructor from an available Class object

Method Summary

java.lang.Class	`_class()` Get the underlying Class object
java.lang.String	`_package()` Get the name of the package this class is part of
java.lang.Class	`arrayType()` Retrieve the base type of an array
java.lang.String	`clstr()` Retrieve a String of the code to generate a new object of this class.
static java.lang.String	`cncs2java(java.lang.String name)`

java.lang.reflect.Constructor[]	constructors() Get all constructors for this class
static void	dumpMethods(java.lang.Class klasse) Debugging method which prints all declared methods to the screen
boolean	equals(java.lang.Object data) Compare ClassInfo objects
java.lang.reflect.Field[]	fields() Get the members of this class
java.lang.String	filename() Get the filename of this class
java.lang.String	fqcn() Get the fully-qualified classname of this class
java.lang.String	fqcncs() Get the fully-qualified classname in C++ notation
java.lang.String	fqsuperclass() Get the fully-qualified name of this class' superclass
boolean	hasMethod(java.lang.String name) Check whether a certain method was declared in this class
boolean	implementing(java.lang.String klass) Check if a certain interface is implemented by this class
java.lang.Class[]	interfaces() Get all interfaces which are implemented by this class
boolean	isAnot(java.lang.Class klass) Checks if a certain Annotation is present
boolean	isArray() Check whether or not this Class is an array type
java.lang.reflect.Method[]	meth_here() Get only the methods which are declared in this class
java.util.LinkedList	methodList() Debugging helper
java.lang.reflect.Method[]	methods() Get the all methods this class provides
java.lang.String	name() Get the simple name of the class
static java.lang.reflect.Method[]	orderMethods(java.lang.reflect.Method[] old_m) Orders methods according to static FunctionIDs (FIDs)
java.lang.Class	sclass() Get the class object of the superclass
java.lang.String	superclass() Get the name of this class' superclass

java.lang.String	toString() Get a string representation of this object

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

klasse

```
private java.lang.Class klasse
```

The underlying class

name

```
private java.lang.String name
```

Prettified name of the class

fqcn

```
private java.lang.String fqcn
```

Fully qualified name of the class

m

```
private java.lang.reflect.Method m
```

Methods in original order

m_ord

```
private java.lang.reflect.Method m_ord
```

Methods in correct order according to the interface definition

Constructors

ClassInfo

```
public ClassInfo(java.lang.String FQCN)
```

Constructor from a fully-qualified classname.

Parameters:

FQCN - fully-qualified classname

ClassInfo

```
public ClassInfo(java.lang.Class klasse)
```

(continued from last page)

Constructor from an available Class object

Parameters:
`klasse` - Class object

Methods

orderMethods

```
private static java.lang.reflect.Method[] orderMethods(java.lang.reflect.Method[]
old_m)
```

Orders methods according to static FunctionIDs (FIDs)

Parameters:
`old_m` - Array of all available methods in this class

Returns:
Sorted array of methods

---

isAnot

```
public boolean isAnot(java.lang.Class klass)
```

Checks if a certain Annotation is present

Parameters:
`klass` - Requested Annotation

Returns:
True if the Annotation is present, false if it is not.

---

fqcn

```
public java.lang.String fqcn()
```

Get the fully-qualified classname of this class

Returns:
Fully-qualified classname

---

fqcncs

```
public java.lang.String fqcncs()
```

Get the fully-qualified classname in C++ notation

Returns:
Fully-qualified classname

---

cncs2java

```
public static java.lang.String cncs2java(java.lang.String name)
```

(continued from last page)

filename

```
public java.lang.String filename()
```

Get the filename of this class

Returns:
Filename

_package

```
public java.lang.String _package()
```

Get the name of the package this class is part of

Returns:
Package name

---

name

```
public java.lang.String name()
```

Get the simple name of the class

Returns:
Class name

_class

```
public java.lang.Class _class()
```

Get the underlying Class object

Returns:
Class object

---

methods

```
public java.lang.reflect.Method[] methods()
```

Get the all methods this class provides

Returns:
Array of methods

---

meth_here

```
public java.lang.reflect.Method[] meth_here()
```

Get only the methods which are declared in this class

Returns:
Array of methods

---

constructors

```
public java.lang.reflect.Constructor[] constructors()
```

(continued from last page)

Get all constructors for this class

Returns:
Array of constructors

interfaces

```
public java.lang.Class[] interfaces()
```

Get all interfaces which are implemented by this class

Returns:
Array of classes

implementing

```
public boolean implementing(java.lang.String klass)
```

Check if a certain interface is implemented by this class

Parameters:
`klass` - Fully-qualified classname of the interface

Returns:
True if it is implemented by this class, false if it is not.

superclass

```
public java.lang.String superclass()
```

Get the name of this class' superclass

Returns:
Name of the superclass

fqsuperclass

```
public java.lang.String fqsuperclass()
```

Get the fully-qualified name of this class' superclass

Returns:
Fully-qualified name of the superclass

sclass

```
public java.lang.Class sclass()
```

Get the class object of the superclass

Returns:
Class object of the superclass

toString

```
public java.lang.String toString()
```

Get a string representation of this object

(continued from last page)

Returns:
String

fields

```
public java.lang.reflect.Field[] fields()
```

Get the members of this class

Returns:
Array of fields

dumpMethods

```
public static void dumpMethods(java.lang.Class klasse)
```

Debugging method which prints all declared methods to the screen

Parameters:
`klasse` - Requested class

arrayType

```
public java.lang.Class arrayType()
```

Retrieve the base type of an array

Returns:
Base type or null if this class is not an array

clstr

```
public java.lang.String clstr()
```

Retrieve a String of the code to generate a new object of this class.

Returns:
Code

equals

```
public boolean equals(java.lang.Object data)
```

Compare ClassInfo objects

Parameters:
`data` - ClassInfo object

Returns:
True if equal, false if not.

isArray

```
public boolean isArray()
```

Check whether or not this Class is an array type

Returns:

(continued from last page)

True if yes, false otherwise.

methodList

```
public java.util.LinkedList methodList()
```

Debugging helper

Returns:
List of methods declared in this class

hasMethod

```
public boolean hasMethod(java.lang.String name)
```

Check whether a certain method was declared in this class

Parameters:
`name` - Name of the method

Returns:
True if it exists, false otherwise

ReflWrap
Class ConstructInfo

```
java.lang.Object
   |
   +-ReflWrap.ConstructInfo
```

public class **ConstructInfo**
extends java.lang.Object

This class wraps all information about a constructor

Field Summary

private	c Underlying Constructor object
private	name Name
private	params String representation of the parameter types

Constructor Summary

public	ConstructInfo(java.lang.reflect.Constructor construct) Generate from an existing constructor

Method Summary

java.lang.reflect.Constructor	c() Retrieve the underlying Constructor object
java.lang.annotation.Annotation[]	getParamAnot(int i) Get the Annotations for a certain parameter
java.lang.String	modifiersToString() Convert all modifiers to a pretty String
java.lang.String	name() Retrieve the constructor's name
java.lang.String[]	params() Retrieve the parameters this constructor takes
java.lang.String	paramsToString() Convert the parameters to a pretty String
java.lang.String	toString() Return a String representation of this object

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

c

```
private java.lang.reflect.Constructor c
```

Underlying Constructor object

name

```
private java.lang.String name
```

Name

params

```
private java.lang.String params
```

String representation of the parameter types

Constructors

ConstructInfo

```
public ConstructInfo(java.lang.reflect.Constructor construct)
```

Generate from an existing constructor

Parameters:

`construct` - Constructor

Methods

c

```
public java.lang.reflect.Constructor c()
```

Retrieve the underlying Constructor object

Returns:

Constructor object

name

```
public java.lang.String name()
```

Retrieve the constructor's name

Returns:

Name

params

```
public java.lang.String[] params()
```

(continued from last page)

Retrieve the parameters this constructor takes

Returns:
Array of parameter types

toString

```
public java.lang.String toString()
```

Return a String representation of this object

Returns:
String

paramsToString

```
public java.lang.String paramsToString()
```

Convert the parameters to a pretty String

Returns:
String

modifiersToString

```
public java.lang.String modifiersToString()
```

Convert all modifiers to a pretty String

Returns:
String

getParamAnot

```
public java.lang.annotation.Annotation[] getParamAnot(int i)
```

Get the Annotations for a certain parameter

Parameters:
`i` - Index of the requested parameter

Returns:
Array of Annotations

ReflWrap
Class MethodInfo

```
java.lang.Object
   |
   +-ReflWrap.MethodInfo
```

public class **MethodInfo**
extends java.lang.Object

Wrapper around java.lang.reflect.Method Retrieve information about methods at runtime

Field Summary

private	m The Method object
private	name Name of the method
private	params Types of this method's parameters

Constructor Summary

public	MethodInfo(java.lang.reflect.Method method) Constructor from a Method object

Method Summary

java.lang.Class	_class() Get the declaring class of this method
java.lang.annotation.Annotation	anot(java.lang.Class klass) Returns this element's annotation for the specified type if such an annotation is present, else null
int	determineID() Determines the position of this method in the Method array of BCEL
java.lang.annotation.Annotation[]	getParamAnot(int i) Get all annotations associated with a parameter
java.lang.Class[]	getParams() Get parameter types of this method
boolean	isStatic() Checks whether this method is static
java.lang.reflect.Method	m() Get the Method object itself
java.lang.String	modifiersToString() Convert all modifiers of this method to a string

java.lang.String	name() Get the name of the method
java.lang.String[]	params() Get parameter types of this method
java.lang.String	paramsToString() Convert all parameters to a single string
ClassInfo	returns() Get the return value type of the method
java.lang.String	returnsT() Return value with template parameters
java.lang.String	toSimpleString() Returns a string representation of this object which can be compared to strings retrieved by BCEL
java.lang.String	toString() Get a string representation of this object

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

m

`private java.lang.reflect.Method m`

The Method object

name

`private java.lang.String name`

Name of the method

params

`private java.lang.String params`

Types of this method's parameters

Constructors

MethodInfo

`public MethodInfo(java.lang.reflect.Method method)`

Constructor from a Method object

Parameters:

(continued from last page)

`method` - Existing Method object

Methods

_class

```
public java.lang.Class _class()
```

Get the declaring class of this method

Returns:
Declaring class

---

m

```
public java.lang.reflect.Method m()
```

Get the Method object itself

Returns:
Method object

---

name

```
public java.lang.String name()
```

Get the name of the method

Returns:
Name

---

returns

```
public ClassInfo returns()
```

Get the return value type of the method

Returns:
Return value

---

determineID

```
private int determineID()
```

Determines the position of this method in the Method array of BCEL

Returns:
Position

---

returnsT

```
public java.lang.String returnsT()
```

Return value with template parameters

Returns:
String

params

```
public java.lang.String[] params()
```

Get parameter types of this method

Returns:
Array of parameter types

getParams

```
public java.lang.Class[] getParams()
```

Get parameter types of this method

Returns:
Array of parameter types

toString

```
public java.lang.String toString()
```

Get a string representation of this object

Returns:
String

paramsToString

```
public java.lang.String paramsToString()
```

Convert all parameters to a single string

Returns:
String with all parameters

isStatic

```
public boolean isStatic()
```

Checks whether this method is static

Returns:
True if static, false if not

modifiersToString

```
public java.lang.String modifiersToString()
```

Convert all modifiers of this method to a string

Returns:
String containing all modifiers

getParamAnot

```
public java.lang.annotation.Annotation[] getParamAnot(int i)
```

(continued from last page)

Get all annotations associated with a parameter

Parameters:
`i` - Index number of the parameter

Returns:
Array of Annotation objects

---

anot

```
public java.lang.annotation.Annotation anot(java.lang.Class klass)
```

Returns this element's annotation for the specified type if such an annotation is present, else null

Parameters:
`klass` - Specified type

Returns:
Element's annotation

---

toSimpleString

```
public java.lang.String toSimpleString()
```

Returns a string representation of this object which can be compared to strings retrieved by BCEL

Returns:
String

ReflWrap
Class Refl

```
java.lang.Object
   |
   +-ReflWrap.Refl
```

public class **Refl**
extends java.lang.Object

This class provides helper functions to the ReflWrap package

Constructor Summary

public	Refl()

Method Summary

static java.lang.String	arrayType(java.lang.String type) Helper function for handling arrays
static java.lang.String	arrayType2(java.lang.String type) Array handling hack
static boolean[]	booleanArray(java.lang.Object data)
static byte[]	byteArray(java.lang.Object data)
static char[]	charArray(java.lang.Object data)
static java.lang.String	class_(java.lang.Class moo) Retrieve a code snippet for generating a new object
static java.lang.String	convert(java.lang.String type) Type conversion helper function
static java.lang.String	defaultVal(java.lang.String type) Get the default value for a specific type
static java.lang.Object	defaultVal2(java.lang.String type) Get the default value of a specific type as an Object
static double[]	doubleArray(java.lang.Object data)
static java.lang.String	firstToken(java.lang.String str, java.lang.String tok) Retrieves the first matching token from a string
static float[]	floatArray(java.lang.Object data)
static java.lang.Class	getClass(java.lang.String type) Get a Class object from a given string

static java.lang.String	handleArray(java.lang.String type) Handles arrays, which are mangled by the Reflection API
static boolean	hasAnot(java.lang.String comp, java.lang.annotation.Annotation[] anot) Checks if a certain annotation is present
static boolean	hasToken(java.lang.String str, java.lang.String tok) Checks if a certain token is present in a string
static int[]	intArray(java.lang.Object data)
static java.lang.String	lastToken(java.lang.String str, java.lang.String tok) Retrieves the last matching token from a string
static long[]	longArray(java.lang.Object data)
static java.lang.Object[]	ObjectArray(java.lang.Object data)
static java.lang.String	printType(java.lang.reflect.Type t) Convert a Type object to a string
static java.lang.String	rtype(java.lang.Class klass) Temporary conversion hack
static short[]	shortArray(java.lang.Object data)
static java.lang.String[]	StringArray(java.lang.Object data)
static java.lang.String	type(java.lang.String type) Returns the class part of a fully-qualified typename

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

Refl

```
public Refl()
```

Methods

hasAnot

```
public static boolean hasAnot(java.lang.String comp,
        java.lang.annotation.Annotation[] anot)
```

Checks if a certain annotation is present

Parameters:

(continued from last page)

`comp` - Annotation to check for
`anot` - Array of annotations to check against

Returns:
True if one of the annotations matches comp, false otherwise

---

rtype

```
public static java.lang.String rtype(java.lang.Class klass)
```

Temporary conversion hack

Parameters:
`klass` - Class to convert

Returns:
Converted code

---

type

```
public static java.lang.String type(java.lang.String type)
```

Returns the class part of a fully-qualified typename

Parameters:
`type` - Fully-qualified typename

Returns:
Class part of the name

---

handleArray

```
public static java.lang.String handleArray(java.lang.String type)
```

Handles arrays, which are mangled by the Reflection API

Parameters:
`type` - Type

Returns:
A cleaned-up type

---

arrayType

```
public static java.lang.String arrayType(java.lang.String type)
```

Helper function for handling arrays

Parameters:
`type` - Type

Returns:
A cleaned-up type

---

arrayType2

```
public static java.lang.String arrayType2(java.lang.String type)
```

(continued from last page)

Array handling hack

Parameters:
`type` - Type

Returns:
Array type

---

getClass

```
public static java.lang.Class getClass(java.lang.String type)
```

Get a Class object from a given string

Parameters:
`type` - Requested class

Returns:
Class object

---

class_

```
public static java.lang.String class_(java.lang.Class moo)
```

Retrieve a code snippet for generating a new object

Parameters:
`moo` - Class to generate an object for

Returns:
Code

---

defaultVal

```
public static java.lang.String defaultVal(java.lang.String type)
```

Get the default value for a specific type

Parameters:
`type` - Type

Returns:
Default value

---

defaultVal2

```
public static java.lang.Object defaultVal2(java.lang.String type)
```

Get the default value of a specific type as an Object

Parameters:
`type` - Type

Returns:
Default value

(continued from last page)

convert

```
public static java.lang.String convert(java.lang.String type)
```

Type conversion helper function

Parameters:
`type` - Type

Returns:
A cleaned-up type

---

firstToken

```
public static java.lang.String firstToken(java.lang.String str,
         java.lang.String tok)
```

Retrieves the first matching token from a string

Parameters:
`str` - String to look in
`tok` - Token to look for

Returns:
First matching token

---

lastToken

```
public static java.lang.String lastToken(java.lang.String str,
         java.lang.String tok)
```

Retrieves the last matching token from a string

Parameters:
`str` - String to look in
`tok` - Token to look for

Returns:
Last matching token

---

hasToken

```
public static boolean hasToken(java.lang.String str,
         java.lang.String tok)
```

Checks if a certain token is present in a string

Parameters:
`str` - String to look in
`tok` - Token to look for

Returns:
True if the token is present, false otherwise

---

printType

```
public static java.lang.String printType(java.lang.reflect.Type t)
```

Convert a Type object to a string

(continued from last page)

Parameters:
`t` - Type object

Returns:
String representation of the Type object

booleanArray

```
public static boolean[] booleanArray(java.lang.Object data)
```

byteArray

```
public static byte[] byteArray(java.lang.Object data)
```

charArray

```
public static char[] charArray(java.lang.Object data)
```

doubleArray

```
public static double[] doubleArray(java.lang.Object data)
```

floatArray

```
public static float[] floatArray(java.lang.Object data)
```

intArray

```
public static int[] intArray(java.lang.Object data)
```

longArray

```
public static long[] longArray(java.lang.Object data)
```

shortArray

```
public static short[] shortArray(java.lang.Object data)
```

StringArray

```
public static java.lang.String[] StringArray(java.lang.Object data)
```

(continued from last page)

ObjectArray

```
public static java.lang.Object[] ObjectArray(java.lang.Object data)
```

ReflWrap
Interface sCID

public interface **sCID**
extends java.lang.annotation.Annotation

This annotation is used to allocate static Function IDs for constructors

Method Summary

short	value()

Methods inherited from interface java.lang.annotation.Annotation
annotationType, equals, hashCode, toString

Methods

value

```
public short value()
```

ReflWrap
Interface sFID

public interface **sFID**
extends java.lang.annotation.Annotation

This annotation is used to allocate static Function IDs

Method Summary

short	value()

Methods inherited from interface java.lang.annotation.Annotation
annotationType, equals, hashCode, toString

Methods

value

```
public short value()
```

ReflWrap
Interface TemplHack

All Known Implementing Classes:
Tupel, Tree, Sibling, Reference, CArray

public interface **TemplHack**

This interface is part of a workaround for Java's erasure of type parameters at compile-time.

Method Summary

void	setTypes(TypeTree[] types)

Methods

setTypes

```
public void setTypes(TypeTree[] types)
```

ReflWrap
Class TypeTree

```
java.lang.Object
   |
   +-ReflWrap.TypeTree
```

public class **TypeTree**
extends java.lang.Object

Data structure for keeping track of template types

Field Summary

private	klasse Type
private	targs Type parameters

Constructor Summary

public	TypeTree(java.lang.Class[] args) Convenience constructor for simple types with a list of type parameters which have no further type parameters.
public	TypeTree(java.lang.Class klass, TypeTree tree)
public	TypeTree(java.lang.Class klass, java.util.LinkedList tree)
public	TypeTree(java.lang.String type) Constructor

Method Summary

static java.lang.String	classify(java.lang.Class[] args) Helper function
boolean	equals(java.lang.String type) Compare a type descriptor to this TypeTree
java.lang.Class	getType() Retrieve the type
TypeTree[]	getTypeArray() Retrieve the type parameters as array
java.util.LinkedList	getTypeParameters() Retrieve the type parameters
java.lang.Class	klasse()

static void	main(java.lang.String[] args) Test code
java.lang.String	substr(java.lang.String str, int start, int end) String.substring() wrapper
java.util.LinkedList	targs()
java.lang.String	toString() Retrieve a string represenatation for this object

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

klasse

```
private java.lang.Class klasse
```

Type

targs

```
private java.util.LinkedList targs
```

Type parameters

Constructors

TypeTree

```
public TypeTree(java.lang.Class[] args)
```

Convenience constructor for simple types with a list of type parameters which have no further type parameters.

Parameters:

`args` - Types

TypeTree

```
public TypeTree(java.lang.Class klass,
                TypeTree tree)
```

TypeTree

```
public TypeTree(java.lang.Class klass,
                java.util.LinkedList tree)
```

TypeTree

```
public TypeTree(java.lang.String type)
```

Constructor

Parameters:
`type` - Type descriptor

Methods

klasse

```
public java.lang.Class klasse()
```

targs

```
public java.util.LinkedList targs()
```

substr

```
private java.lang.String substr(java.lang.String str,
         int start,
         int end)
```

String.substring() wrapper

Parameters:
`str` - String
`start` - Start of substring
`end` - End of substring or -1 for whole string

Returns:
Substring

getType

```
public java.lang.Class getType()
```

Retrieve the type

Returns:
Type

getTypeParameters

```
public java.util.LinkedList getTypeParameters()
```

Retrieve the type parameters

Returns:
Type parameters

(continued from last page)

getTypeArray

```
public TypeTree[] getTypeArray()
```

Retrieve the type parameters as array

Returns:
Type parameter array

---

classify

```
public static java.lang.String classify(java.lang.Class[] args)
```

Helper function

Parameters:
`args` - Types

Returns:
Fully-qualified type names in a string

---

toString

```
public java.lang.String toString()
```

Retrieve a string represenatation for this object

Returns:
String

---

equals

```
public boolean equals(java.lang.String type)
```

Compare a type descriptor to this TypeTree

Parameters:
`type` - Type descriptor

Returns:
True if equal, false if not

---

main

```
public static void main(java.lang.String[] args)
```

Test code

Package
Resourcery

Resourcery
Class CTL_LocatorCTLI

```
java.lang.Object
   |
   +-CTL.ToolBase
      |
      +-Resourcery.CTL_LocatorCTLI
```

public class **CTL_LocatorCTLI**
extends ToolBase

Resource manager RI

Field Summary

private	components
private	locations

Constructor Summary

public	CTL_LocatorCTLI()

Method Summary

Location	get(java.lang.String arg0, AnyObj arg1)

Methods inherited from class CTL.ToolBase

findAllCIs, findCIs, findCIs, findClasses, findImpls, loadClasses, whereAmI, whereAmI

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

components

```
private java.util.LinkedList components
```

locations

```
private java.util.LinkedList locations
```

Constructors

CTL_LocatorCTLI

```
public CTL_LocatorCTLI()
```

Methods

get

```
public Location get(java.lang.String arg0,
       AnyObj arg1)
```

Package
Test

Test
Class ASCII

```
java.lang.Object
   |
   +-Test.ASCII
```

public class **ASCII**
extends java.lang.Object

Test case for the ASCII serializer

Constructor Summary

public	ASCII()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

ASCII

`public` **`ASCII`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Test
Class CTLTest

```
java.lang.Object
   |
   +-Test.CTLTest
```

public class **CTLTest**
extends java.lang.Object

Test harness for all test cases

Field Summary

private static	verbose

Constructor Summary

public	CTLTest()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

verbose

`private static boolean` **`verbose`**

Constructors

CTLTest

`public` **`CTLTest`**`()`

Methods

(continued from last page)

main

```
public static void main(java.lang.String[] args)
```

Test
Class PiSimpleNoCTL

```
java.lang.Object
   |
   +-Test.PiSimpleNoCTL
```

public class **PiSimpleNoCTL**
extends java.lang.Object

Non-CTL implementation of the Pi calculation for comparison

Constructor Summary

public	PiSimpleNoCTL()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

PiSimpleNoCTL

`public PiSimpleNoCTL()`

Methods

main

`public static void main(java.lang.String[] args)`

Test
Class TClient

```
java.lang.Object
   |-junit.framework.Assert
      |-junit.framework.TestCase
         |-Test.TClient
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TClient**
extends junit.framework.TestCase

Test case for the CTL itself

Field Summary

private static	loc
private static	proc

Fields inherited from class junit.framework.TestCase

fName

Constructor Summary

public	TClient()

Method Summary

void	testEvCalcCI()
void	testMatheCI1()
void	testMatheCI2()
void	testrResult()

Methods inherited from class junit.framework.TestCase

countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class junit.framework.Assert

assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `junit.framework.Test`

countTestCases, run

Fields

loc

```
private static CTL.Types.Location loc
```

proc

```
private static CTL.Process proc
```

Constructors

TClient

```
public TClient()
```

Methods

testMatheCI1

```
public void testMatheCI1()
```

testMatheCI2

```
public void testMatheCI2()
```

(continued from last page)

testEvCalcCI

```
public void testEvCalcCI()
```

testrResult

```
public void testrResult()
```

Test
Class TGraph

```
java.lang.Object
   |-junit.framework.Assert
      |-junit.framework.TestCase
         |-Test.TGraph
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TGraph**
extends junit.framework.TestCase

Test case for Graph

Fields inherited from class `junit.framework.TestCase`
`fName`

Constructor Summary

public	TGraph()

Method Summary

static void	main(java.lang.String[] args)
void	testGraph()

Methods inherited from class `junit.framework.TestCase`
`countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString`

Methods inherited from class `junit.framework.Assert`
`assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format`

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `junit.framework.Test`

countTestCases, run

Constructors

TGraph

public **TGraph**()

Methods

testGraph

public void **testGraph**()

main

public static void **main**(java.lang.String[] args)

Test
Class TIPaddr

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TIPaddr
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TIPaddr**
extends junit.framework.TestCase

Test case for the IPaddr type
See Also:
IPaddr

Fields inherited from class `junit.framework.TestCase`
`fName`

Constructor Summary

public	TIPaddr()

Method Summary

static void	main(java.lang.String[] args)
void	testIPaddr1()
void	testIPaddr2()

Methods inherited from class `junit.framework.TestCase`
countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class `junit.framework.Assert`
assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface junit.framework.Test
countTestCases, run

Constructors

TIPaddr

```
public TIPaddr()
```

Methods

testIPaddr1

```
public void testIPaddr1()
  throws java.net.UnknownHostException
```

testIPaddr2

```
public void testIPaddr2()
  throws java.net.UnknownHostException
```

main

```
public static void main(java.lang.String[] args)
```

Test
Class TIStream

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TIStream
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TIStream**
extends junit.framework.TestCase

Test case for the 'intelligent' stream
See Also:
IStream

Field Summary

private	tests

Fields inherited from class junit.framework.TestCase

fName

Constructor Summary

public	TIStream()

Method Summary

static void	main(java.lang.String[] args)
void	testCase1()
void	testCase2()
void	testCase3()
void	testCase4()
static java.lang.String	toString(java.lang.Object data)

Methods inherited from class junit.framework.TestCase

countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class `junit.framework.Assert`
`assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format`

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `junit.framework.Test`
`countTestCases, run`

Fields

tests

`private java.lang.String **tests**`

Constructors

TIStream

`public **TIStream**()`

Methods

toString

`public static java.lang.String **toString**(java.lang.Object data)`

testCase1

`public void **testCase1**()`

testCase2

`public void **testCase2**()`

(continued from last page)

testCase3

```
public void testCase3()
```

testCase4

```
public void testCase4()
```

main

```
public static void main(java.lang.String[] args)
```

Test
Class TJava

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TJava
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TJava**
extends junit.framework.TestCase

Testing the serialization of Java standard library types

Fields inherited from class `junit.framework.TestCase`
`fName`

Constructor Summary

public	TJava()

Method Summary

void	testHashMap()
void	testHashSet()
void	testLinkedList()
void	testStack()
void	testVector()

Methods inherited from class `junit.framework.TestCase`
countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class `junit.framework.Assert`
assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `junit.framework.Test`
`countTestCases, run`

Constructors

TJava

`public` **`TJava`**`()`

Methods

testHashMap

`public void` **`testHashMap`**`()`

testHashSet

`public void` **`testHashSet`**`()`

testLinkedList

`public void` **`testLinkedList`**`()`

testStack

`public void` **`testStack`**`()`

testVector

`public void` **`testVector`**`()`

Test
Class TLocation

```
java.lang.Object
   |
   +-Test.TLocation
```

public class **TLocation**
extends java.lang.Object

Test case for Location.parseFile()

Constructor Summary

public	TLocation()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

TLocation

```
public TLocation()
```

Methods

main

```
public static void main(java.lang.String[] args)
  throws java.io.IOException
```

Test
Class TMagic

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TMagic
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TMagic**
extends junit.framework.TestCase

Test case for Remote.magic handling
See Also:
Remote, IPaddr

Field Summary

private static	results

Fields inherited from class junit.framework.TestCase

fName

Constructor Summary

public	TMagic()

Method Summary

void	testMagic()

Methods inherited from class junit.framework.TestCase

countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class junit.framework.Assert

assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface junit.framework.Test
countTestCases, run

Fields

results

private static java.lang.String **results**

Constructors

TMagic

public **TMagic**()

Methods

testMagic

public void **testMagic**()

Test
Class TObjectStream

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TObjectStream
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TObjectStream**
extends junit.framework.TestCase

Test case for the object streams
See Also:
OOStream, OIStream

Field Summary

private	in
private	out

Fields inherited from class junit.framework.TestCase

fName

Constructor Summary

public	TObjectStream()

Method Summary

void	testCase()

Methods inherited from class junit.framework.TestCase

countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class junit.framework.Assert

assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `junit.framework.Test`
`countTestCases, run`

Fields

out

```
private CTL.Streams.OOStream out
```

in

```
private CTL.Streams.OIStream in
```

Constructors

TObjectStream

```
public TObjectStream()
```

Methods

testCase

```
public void testCase()
  throws java.io.IOException,
         java.lang.IllegalAccessException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Test
Class TOStream

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TOStream
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TOStream**
extends junit.framework.TestCase

Another test case for the object streams
See Also:
OOStream, OIStream

Field Summary

private	in
private	out

Fields inherited from class junit.framework.TestCase

fName

Constructor Summary

public	TOStream()

Method Summary

void	testCase()

Methods inherited from class junit.framework.TestCase

countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class junit.framework.Assert

assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `junit.framework.Test`
`countTestCases, run`

Fields

out

```
private CTL.Streams.OOStream out
```

in

```
private CTL.Streams.OIStream in
```

Constructors

TOStream

```
public TOStream()
```

Methods

testCase

```
public void testCase()
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException,
         CTLException
```

Test
Class TRef

```
java.lang.Object
   |-junit.framework.Assert
      |-junit.framework.TestCase
         |-Test.TRef
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TRef**
extends junit.framework.TestCase

Test case for CTL.Reference

Fields inherited from class `junit.framework.TestCase`
`fName`

Constructor Summary

public	TRef()

Method Summary

static void	main(java.lang.String[] args)
void	testReference()

Methods inherited from class `junit.framework.TestCase`
countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class `junit.framework.Assert`
assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `junit.framework.Test`

countTestCases, run

Constructors

TRef

public **TRef**()

Methods

testReference

public void **testReference**()

main

public static void **main**(java.lang.String[] args)

Test
Class TReflArray

```
java.lang.Object
   ┗-Test.TReflArray
```

public class **TReflArray**
extends java.lang.Object

Test for writing arrays

Field Summary

private	in
private	out

Constructor Summary

public	TReflArray()

Method Summary

double[]	foobar(java.lang.Object data)
static void	main(java.lang.String[] args)
void	testCase()

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Fields

in

```
private CTL.Streams.OIStream in
```

out

```
private CTL.Streams.OOStream out
```

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Constructors

TReflArray

```
public TReflArray()
```

Methods

testCase

```
public void testCase()
  throws java.io.IOException,
         CTLException,
         java.lang.ClassNotFoundException,
         java.lang.InstantiationException,
         java.lang.IllegalAccessException,
         java.lang.reflect.InvocationTargetException
```

---

foobar

```
private double[] foobar(java.lang.Object data)
```

---

main

```
public static void main(java.lang.String[] args)
```

Test
Class TToolBase

```
java.lang.Object
   |-junit.framework.Assert
      |-junit.framework.TestCase
         |-Test.TToolBase
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TToolBase**
extends junit.framework.TestCase

Testcase for CTL.ToolBase functionality

Nested Class Summary

class	TToolBase.ToolBase2 TToolBase.ToolBase2

Fields inherited from class `junit.framework.TestCase`

`fName`

Constructor Summary

public	TToolBase()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `junit.framework.TestCase`

`countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString`

Methods inherited from class `junit.framework.Assert`

`assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format`

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `junit.framework.Test`
`countTestCases, run`

Constructors

TToolBase

`public` **`TToolBase`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Test
Class TToolBase.ToolBase2

```
java.lang.Object
   ┗-CTL.ToolBase
      ┗-Test.TToolBase.ToolBase2
```

private class **TToolBase.ToolBase2**
extends ToolBase

Constructor Summary

private	TToolBase.ToolBase2()

Methods inherited from class CTL.ToolBase

findAllCIs, findCIs, findCIs, findClasses, findImpls, loadClasses, whereAmI, whereAmI

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Constructors

TToolBase.ToolBase2

private **TToolBase.ToolBase2**()

Test
Class TTree

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TTree
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TTree**
extends junit.framework.TestCase

Test case for the Tree data structure

Fields inherited from class `junit.framework.TestCase`
`fName`

Constructor Summary

public	TTree()

Method Summary

static void	main(java.lang.String[] args)
void	testMe()

Methods inherited from class `junit.framework.TestCase`
`countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString`

Methods inherited from class `junit.framework.Assert`
`assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format`

Methods inherited from class `java.lang.Object`
`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Methods inherited from interface `junit.framework.Test`

countTestCases, run

Constructors

TTree

public **TTree**()

Methods

testMe

public void **testMe**()

main

public static void **main**(java.lang.String[] args)

Test
Class TTupel

```
java.lang.Object
   |
   +-junit.framework.Assert
      |
      +-junit.framework.TestCase
         |
         +-Test.TTupel
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TTupel**
extends junit.framework.TestCase

Test case for CTL.Tupel
See Also:
`Tupel`

Field Summary

private	in
private	out

Fields inherited from class `junit.framework.TestCase`

`fName`

Constructor Summary

public	TTupel()

Method Summary

static void	main(java.lang.String[] types)
void	testCase()

Methods inherited from class `junit.framework.TestCase`

`countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString`

Methods inherited from class `junit.framework.Assert`

assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`

clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `junit.framework.Test`

countTestCases, run

Fields

out

```
private CTL.Streams.OOStream out
```

in

```
private CTL.Streams.OIStream in
```

Constructors

TTupel

```
public TTupel()
```

Methods

main

```
public static void main(java.lang.String[] types)
```

testCase

```
public void testCase()
  throws java.io.IOException,
         java.lang.ClassNotFoundException,
         java.lang.reflect.InvocationTargetException,
         java.lang.IllegalAccessException,
         java.lang.InstantiationException,
         CTLException
```

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Test
Class TVault

```
java.lang.Object
   |-junit.framework.Assert
      |-junit.framework.TestCase
         |-Test.TVault
```

All Implemented Interfaces:
junit.framework.Test

---

public class **TVault**
extends junit.framework.TestCase

Test case for CTL.Vault

Fields inherited from class `junit.framework.TestCase`
`fName`

Constructor Summary

public	TVault()

Method Summary

static void	main(java.lang.String[] args)
void	testSimpleVault()

Methods inherited from class `junit.framework.TestCase`
countTestCases, createResult, getName, run, run, runBare, runTest, setName, setUp, tearDown, toString

Methods inherited from class `junit.framework.Assert`
assertEquals, assertFalse, assertFalse, assertNotNull, assertNotNull, assertNotSame, assertNotSame, assertNull, assertNull, assertSame, assertSame, assertTrue, assertTrue, fail, fail, failNotEquals, failNotSame, failSame, format

Methods inherited from class `java.lang.Object`
clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait

Methods inherited from interface `junit.framework.Test`

countTestCases, run

Constructors

TVault

public **TVault**()

Methods

testSimpleVault

public void **testSimpleVault**()

main

public static void **main**(java.lang.String[] args)

Package
Test.endianess

Test.endianess
Class Reader

```
java.lang.Object
   |
   +-Test.endianess.Reader
```

public class **Reader**
extends java.lang.Object

Reader test for endianess conversion

Constructor Summary

public	Reader()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Reader

`public` **`Reader`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Test.endianess
Class Writer

```
java.lang.Object
   |
   +-Test.endianess.Writer
```

public class **Writer**
extends java.lang.Object

Writer test for endianess conversion

Constructor Summary

public	Writer()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Writer

`public` **`Writer`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Package
Test.nio

Test.nio
Class NIOClient

```
java.lang.Object
   |
   +-Test.nio.NIOClient
```

public class **NIOClient**
extends java.lang.Object

New IO test client

Constructor Summary

public	NIOClient()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

NIOClient

`public` **`NIOClient`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Test.nio
Class Server

```
java.lang.Object
   |
   +-Test.nio.Server
```

public class **Server**
extends java.lang.Object

Old IO test server

Constructor Summary

public	Server()

Method Summary

static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Constructors

Server

`public` **`Server`**`()`

Methods

main

`public static void` **`main`**`(java.lang.String[] args)`

Package
Tools

Tools
Class ClassDumper

```
java.lang.Object
   |
   +-Tools.ClassDumper
```

public class **ClassDumper**
extends java.lang.Object

Dumps information about available classes to the screen using the java.lang.reflect package.

Field Summary

private static final	output Value: **true**

Constructor Summary

public	ClassDumper()

Method Summary

static void	dump_class(java.lang.String klasse) Dump information to the screen
static void	main(java.lang.String[] args)

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

Fields

output

```
private static final boolean output
```

Constant value: **true**

Constructors

ClassDumper

```
public ClassDumper()
```

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Methods

dump_class

```
private static void dump_class(java.lang.String klasse)
```

Dump information to the screen

Parameters:

`klasse` - Requested class

---

main

```
public static void main(java.lang.String[] args)
```

Tools
Class HexDumper

```
java.lang.Object
   |
   +-Tools.HexDumper
```

public class **HexDumper**
extends java.lang.Object

Simple byte array to hex conversion class

Field Summary

private	bytes Byte array to work with

Constructor Summary

public	HexDumper(byte[] bytes) Generate a new HexDumper
public	HexDumper(java.lang.String str) Generate a new HexDumper

Method Summary

static java.lang.String	byteToHex(byte beit) Convert one byte to hexadecimal
static byte	cleanByte(byte b) Filter escape characters
java.lang.String	convert() Convert to a string of hexadecimal numbers
static char	intToHex(int hbyte) Convert one integer to hexadecimal
static java.lang.String	lineNumber(int i, int w) Pretty line number
static void	main(java.lang.String[] args)
java.lang.String	toString() Get a string representation of this object

Methods inherited from class `java.lang.Object`

`clone, equals, finalize, getClass, hashCode, notify, notifyAll, registerNatives, toString, wait, wait, wait`

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Fields

bytes

```
private byte bytes
```

Byte array to work with

Constructors

HexDumper

```
public HexDumper(byte[] bytes)
```

Generate a new HexDumper

Parameters:
`bytes` - Byte array to work with

HexDumper

```
public HexDumper(java.lang.String str)
```

Generate a new HexDumper

Parameters:
`str` - String to work with

Methods

toString

```
public java.lang.String toString()
```

Get a string representation of this object

Returns:
String

---

convert

```
public java.lang.String convert()
```

Convert to a string of hexadecimal numbers

Returns:
String

---

cleanByte

```
public static byte cleanByte(byte b)
```

Filter escape characters

Parameters:
`b` - A byte

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Returns:
Filtered byte

lineNumber

```
public static java.lang.String lineNumber(int i,
         int w)
```

Pretty line number

Parameters:
`i` - Line number
`w` - Width of the line number column

Returns:
Correctly aligned line number in a string

byteToHex

```
public static java.lang.String byteToHex(byte beit)
```

Convert one byte to hexadecimal

Parameters:
`beit` - A byte

Returns:
Hexadecimal string

intToHex

```
public static char intToHex(int hbyte)
```

Convert one integer to hexadecimal

Parameters:
`hbyte` - An integer

Returns:
Hexadecimal string

main

```
public static void main(java.lang.String[] args)
```