

jswf

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Chapter 1

Todo List

Class `jswf::avm2::ast::ActivationNode`

What is this?

Class `jswf::avm2::ast::AttrNode`

Why not combine this with object?

Class `jswf::avm2::ast::CompoundNode`

Make a statement node?

Class `jswf::avm2::ast::DefinitionNode`

This should be `DeclarationNode`

Class `jswf::avm2::ast::PrimitiveCastNode`

What about other types?

Class `jswf::avm2::ast::VoidNode`

What is this here for?!

Member `jswf::fb_t`

Could store them differently

Class `jswf::flash::DisplayListEntry`

Should structures implement read/write themselves?

This structure is wrong. `usePreviousMatrix` can be replaced with a `getProperty`-test on our `avm2Object` with a fallback to `matrix`. Also, `avm2Object` will not properly work in nested environments (tree structures). Same thing with modifications by AVM2 (adding/removing `DisplayObjects`).

Class `jswf::flash::Document`

`Document::tags` and `Sprite::tags` ? Somewhat redundant.

See also

`ITagForDocument`

Member `jswf::flash::Document::rootSprite`

This is the `main_timeline` object! It can also be transformed!

Class `jswf::flash::Matrix`

These structures are in the wrong file.

Class `jswf::flash::Segment`

Use `Points` for the coordinates.

Class `jswf::flash::tags::DefineButton2Tag`

"by allowing any state transition to trigger actions."... what?

Member `jswf::flash::tags::DefineShape2Tag::readArrayCount ()`

Document this. Especially throw.

Member `jswf::flash::tags::DefineShapeTag::readFillStyle ()`

Some of these styles should *only* be implemented *in subclasses*.

Class `jswf::flash::tags::PlaceObject2Tag`

Implement `PlaceObject`

Create a super-class for TAGs that modify the display list.

Class `jswf::flash::tags::RemoveObject2Tag`

Implement `RemoveObject`

Class `jswf::flash::tags::ShowFrameTag`

Also some kind of Frame-modification super-class, but requires more parameters.

Member `jswf::flash::tags::Tag::type`

Make this an enum!

Class `jswf::flash::tags::TagWithCharacter`

It's not nice to implement a function in an interface!

Member `jswf::io::GenericReader::pos`

Protected with optional seek.

Chapter 2

Bug List

Class `jswf::render::Context`

Lines not rendering.

Chapter 3

Namespace Index

3.1 Namespace List

Here is a list of all documented namespaces with brief descriptions:

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jswf::avm2::ast	Contains classes that represent the abstract syntax-tree for compilation / decompilation	22
jswf::avm2::lib	Contains native implementations of ActionScript 3.0 libraries	23
jswf::flash	Contains structures and classes described by the SWF specification	23
jswf::flash::styles	Contains classes that describe line- and fill-styles	24
jswf::flash::tags	Contains classes that describe TAG s	25
jswf::io	Contains classes to read/write primitives from/to streams	26
jswf::render	Contains structures and classes to render SWF shapes	26

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Hierarchical Index

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This inheritance list is sorted roughly, but not completely, alphabetically:

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Class Index

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jswf/flash/tags/ITagForDocument.h	??
jswf/flash/tags/ITagForSprite.h	??
jswf/flash/tags/JPEGTablesTag.h	??
jswf/flash/tags/MetadataTag.h	??
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jswf/io/ StringReader.h	??
jswf/render/ Render.h	??

Chapter 7

Namespace Documentation

7.1 jswf Namespace Reference

Contains all members of jswf.

Namespaces

- [avm2](#)
Contains structures and classes described by the AVM2 specification.
- [flash](#)
Contains structures and classes described by the SWF specification.
- [io](#)
Contains classes to read/write primitives from/to streams.
- [render](#)
Contains structures and classes to render SWF shapes.

Typedefs

- typedef double [fb_t](#)
Represents FB values.
- typedef int64_t [sb_t](#)
Represents SB values (only up to 64 bits supported)
- typedef uint64_t [ub_t](#)
Represents UB values (only up to 64 bits supported)
- typedef float **fixed8_t**
- typedef uint8_t [u8_t](#)
Represents U8
- typedef uint16_t [u16_t](#)
Represents U16
- typedef uint32_t [u32_t](#)
Represents U32
- typedef uint32_t [u30_t](#)
Represents U30
- typedef int8_t [s8_t](#)
Represents S8
- typedef int16_t [s16_t](#)
Represents S16

- typedef int32_t [s24_t](#)
Represents S24
- typedef int32_t [s32_t](#)
Represents S32
- typedef double [d64_t](#)
Represents D64
- typedef std::string [string](#)
Represents strings.

7.1.1 Detailed Description

Contains all members of jswf.

7.1.2 Typedef Documentation

7.1.2.1 typedef double jswf::fb_t

Represents FB values.

Todo Could store them differently

7.2 jswf::avm2 Namespace Reference

Contains structures and classes described by the AVM2 specification.

Namespaces

- [ast](#)
Contains classes that represent the abstract syntax-tree for compilation / decompilation.
- [lib](#)
Contains native implementations of ActionScript 3.0 libraries.

Classes

- class [ABCFile](#)
- class [ArrayObject](#)
- class [BooleanObject](#)
- class [BuiltinMethodObject](#)
Represents a method that is provided by the runtime.
- class [Class](#)
- struct [ClassInfo](#)
- class [ClassObject](#)
Represents a class.
- struct [ClassTraitInfo](#)
- struct [ConstantKind](#)
- struct [ConstantPool](#)
- class [DisplayObject](#)
- class [DoubleObject](#)
- struct [ECMAHint](#)
- struct [ExceptionInfo](#)

- class [FunctionObject](#)
Represents a `function()` {} that was created using `newfunction`.
- struct [FunctionTraitInfo](#)
- struct [InstanceInfo](#)
- class [IntObject](#)
- struct [Metadata](#)
- struct [MetadataItem](#)
- struct [MethodBody](#)
- struct [MethodInfo](#)
- class [MethodObject](#)
Represents a method that was created as a trait of an instance or a class.
- struct [MethodTraitInfo](#)
- struct [Multiname](#)
- class [MultinameObject](#)
- struct [Namespace](#)
- struct [NamespaceKind](#)
- class [NamespaceObject](#)
- struct [NamespaceSet](#)
- class [NativeObject](#)
- class [NumberObject](#)
- class [Object](#)
- struct [OptionDetail](#)
- class [Scope](#)
- struct [ScriptInfo](#)
- struct [SlotTraitInfo](#)
- class [StringObject](#)
- struct [TraitInfo](#)
- struct [TraitMatch](#)
- class [VM](#)
- class [VoidObject](#)

Typedefs

- typedef std::shared_ptr< [Object](#) > **ObjectPtr**
- typedef std::map< [TraitInfo](#) *, ObjectPtr > **TraitMap**
- typedef std::map< [u30_t](#), ObjectPtr > **SlotMap**
- typedef ObjectPtr **builtin_method_t** ([VM](#) &, [MethodInfo](#) *, std::vector< ObjectPtr > &)
- typedef std::shared_ptr< [Multiname](#) > **MultinamePtr**
- typedef std::shared_ptr< [Namespace](#) > **NamespacePtr**
- typedef std::shared_ptr< [NamespaceSet](#) > **NamespaceSetPtr**
- typedef double **Number**
- typedef [string](#) **String**

Functions

- ObjectPtr **builtin_trace** ([VM](#) &vm, [MethodInfo](#) *method, std::vector< ObjectPtr > &arguments)
- ObjectPtr **builtin_getQualifiedClassName** ([VM](#) &vm, [MethodInfo](#) *method, std::vector< ObjectPtr > &arguments)
- ObjectPtr **builtin_addEventListener** ([VM](#) &vm, [MethodInfo](#) *method, std::vector< ObjectPtr > &arguments)
- **make_native_class** (UIntObject, [NumberObject](#), [u32_t](#), coerce_u, std::string coerce_s() const {return std::to_string(value);} bool coerce_b() const {return value!=0;} double coerce_d() const {return value;})

Variables

- builtin_method_t **builtin_trace**
- builtin_method_t **builtin_getQualifiedClassName**
- builtin_method_t **builtin_addEventListener**

7.2.1 Detailed Description

Contains structures and classes described by the AVM2 specification.

7.3 jswf::avm2::ast Namespace Reference

Contains classes that represent the abstract syntax-tree for compilation / decompilation.

Classes

- class [ActivationNode](#)
Describes an activation object.
- class [ArrayNode](#)
Describes an array literal.
- class [AttrNode](#)
Describes a property retrieved from an object.
- class [CallNode](#)
Describes a call to a function / method.
- class [CommentNode](#)
Describes a comment statement.
- class [CompoundNode](#)
Describes a node that contains statements.
- class [ConstantNode](#)
- class [DefinitionNode](#)
Describes a declaration of a local variable.
- class [DiadicNode](#)
Describes a diadic operation.
- class [DoubleNode](#)
Describes a node that carries a double literal.
- class [FunctionNode](#)
Describes a function literal.
- class [IntNode](#)
Describes a node that carries an integer literal.
- class [LocalNode](#)
*Describes a local register (*this*, arguments and local variables).*
- class [MonadicNode](#)
Describes a monadic operation.
- class [Node](#)
Serves as super-class for all nodes.
- class [ObjectNode](#)
Describes a hash literal.
- class [PrimitiveCastNode](#)
Describes a cast to a primitive type.
- class [PropNode](#)

- Describes a property.*
- class [ReturnNode](#)
 - Describes a return statement.*
- class [StringNode](#)
 - Describes a node that carries a string literal.*
- class [SuperNode](#)
- class [VoidNode](#)
 - Describes.*
- class [WithNode](#)
 - Describes a `with` statement.*

Typedefs

- typedef std::shared_ptr< [Node](#) > **NodePtr**

7.3.1 Detailed Description

Contains classes that represent the abstract syntax-tree for compilation / decompilation.

7.4 jswf::avm2::lib Namespace Reference

Contains native implementations of ActionScript 3.0 libraries.

7.4.1 Detailed Description

Contains native implementations of ActionScript 3.0 libraries.

7.5 jswf::flash Namespace Reference

Contains structures and classes described by the SWF specification.

Namespaces

- [styles](#)
 - Contains classes that describe line- and fill-styles.*
- [tags](#)
 - Contains classes that describe [TAG s](#).*

Classes

- class [Button](#)
 - Represents a `BUTTON` character.*
- class [Character](#)
 - Represents a character for the document's `DICTIONARY`.*
- struct [ColorTransform](#)
 - Represents `CXFORM` and `CXFORMWITHALPHA` records.*
- struct [Compression](#)

- Provides [Compression::Enum](#).*
- struct [DisplayListEntry](#)
- class [Document](#)
 - Parses and represents a [SWF](#) file.*
- struct [Edge](#)
 - Represents an edge between two [Points](#).*
- class [Frame](#)
- struct [FrameLabel](#)
 - FrameLabels for the main timeline.*
- struct [Header](#)
 - Represents the [HEADER](#) record.*
- struct [Matrix](#)
 - Represents [MATRIX](#) records.*
- struct [Point](#)
 - Represents a two-dimensional point.*
- struct [Polygon](#)
 - Represents a collection of [Edges](#) that form a closed polygon.*
- class [Reader](#)
 - Servers as reader for complex structures like tags, colors, matrices, etc.*
- struct [Rect](#)
 - Represents [RECT](#) records.*
- struct [RGBA](#)
 - Represents [RGB](#), [RGBA](#) and [ARGB](#) color records.*
- struct [Scene](#)
 - Scenes for the main timeline.*
- struct [Segment](#)
 - Represents a segment as drawn by a [SHAPEWITHSTYLE](#) record [line](#)/[qline](#) action.*
- class [Shape](#)
 - Represents a [SHAPE](#) character.*
- class [Sprite](#)
 - Represents a [SPRITE](#) character.*
- struct [SymbolClass](#)
 - Describes a ([Character](#), class-name) tuple.*
- class [TagFactory](#)
 - Provides methods to create a polymorphic Tag by a given type identifier.*

Typedefs

- typedef uint8_t **version_t**

7.5.1 Detailed Description

Contains structures and classes described by the SWF specification.

7.6 jswf::flash::styles Namespace Reference

Contains classes that describe line- and fill-styles.

Classes

- class [BitmapFillStyle](#)
- class [FillStyle](#)
- class [FocalGradientFillStyle](#)
- class [GradientFillStyle](#)
- struct [GradientStop](#)
- class [LineStyle](#)
- class [SolidFillStyle](#)

Typedefs

- typedef std::shared_ptr
< [FillStyle](#) > **FillStylePtr**
- typedef std::shared_ptr
< [LineStyle](#) > **LineStylePtr**

7.6.1 Detailed Description

Contains classes that describe line- and fill-styles.

7.7 jswf::flash::tags Namespace Reference

Contains classes that describe [TAG](#) s.

Classes

- class [DefineButton2Tag](#)
Extends [DefineButtonTag](#) with support for [TrackAsMenu](#).
- class [DefineButtonTag](#)
Parses a [BUTTON](#) record that is to be added to the document's [DICTIONARY](#).
- class [DefineSceneAndFrameLabelDataTag](#)
Carries [Scenes](#) and [FrameLabels](#).
- class [DefineShape2Tag](#)
Extends [DefineShapeTag](#) with support for up to 65534 (0xffff) elements for [FillStyleArray](#) and [LineStyleArray](#).
- class [DefineShape3Tag](#)
Extends [DefineShape2Tag](#) with support for transparency in colors by using [Reader::readRGBA](#) instead of [Reader::readRGB](#).
- class [DefineShape4Tag](#)
Extends [DefineShape3Tag](#) with support for [LINESTYLE2](#).
- class [DefineShapeTag](#)
Parses a [SHAPE](#) record that is to be added to the document's [DICTIONARY](#).
- class [DefineSpriteTag](#)
Parses a [SPRITE](#) record that is to be added to the document's [DICTIONARY](#).
- class [DoABCTag](#)
Carries an [ABCFile](#) to be executed by the [avm2::VM](#).
- class [EndTag](#)
Marks the end of a tag array and thereby the end of a [Document](#) or [Sprite](#).
- class [FileAttributesTag](#)

- Represents `FileAttribute` tags.*

 - class [ITagForDocument](#)

Interface for TAGs that implement actions to be performed on the [Document](#).
 - class [ITagForSprite](#)

Interface for TAGs that implement actions to be performed on [Sprites](#).
 - class [PlaceObject2Tag](#)

Used to add a [Character](#) to the [DisplayList](#) or to modify an existing [Character](#) in the [DisplayList](#)
 - class [RemoveObject2Tag](#)

Used to remove a [Character](#) at a given depth from the [DisplayList](#).
 - class [SetBackgroundColorTag](#)

Defines the background color of a SWF.
 - class [ShowFrameTag](#)

Finalizes the current temporary frame and adds it to the frames of a [Document](#) or [Sprite](#) .
 - class [SymbolClassTag](#)

Assigns class-names of AVM2 classes to [Characters](#).
 - class [Tag](#)

Serves as super-class for all TAGs.
 - class [TagWithCharacter](#)

*Super-class for TAGs that define a character for the document's `DICTIONARY` (eg [DefineShapeTag](#), [DefineButtonTag](#)↵
[Tag](#)).*
 - class [TagWithReader](#)

Serves as super-class for all TAGs that use an [io::StringReader](#) and/or a [flash::Reader](#) to parse their payload.

Typedefs

- typedef uint16_t [tag_type_t](#)

7.7.1 Detailed Description

Contains classes that describe [TAG s](#).

7.8 jswf::io Namespace Reference

Contains classes to read/write primitives from/to streams.

Classes

- class [GenericReader](#)

Servers as reader for primitive data-types like integers, doubles and strings.
- class [StringReader](#)

Implements [io::GenericReader](#) using a string as stream.

7.8.1 Detailed Description

Contains classes to read/write primitives from/to streams.

7.9 jswf::render Namespace Reference

Contains structures and classes to render SWF shapes.

Classes

- struct [Context](#)

Functions

- void **renderShape** (const [flash::Shape](#) &shape, const [Context](#) &ctx)
- void **renderFrame** (const [flash::Frame](#) &frame, const [Context](#) &ctx)

7.9.1 Detailed Description

Contains structures and classes to render SWF shapes.

Chapter 8

Class Documentation

8.1 jswf::avm2::ABCFile Class Reference

Public Member Functions

- **ABCFile** (std::shared_ptr< [io::GenericReader](#) > reader)
- std::string **makeString** (std::string [string](#), [u30_t](#) *iOut=NULL)
- NamespacePtr **makeNamespace** (std::string name, NamespaceKind::Enum kind)
- MultinamePtr **makeMultiname** (Multiname::Kind kind)
- MultinamePtr **makeQName** (std::string ns, std::string name)
- MultinamePtr **makeQName** (std::string ns, std::string name, NamespaceKind::Enum nsKind)
- [Class](#) * **makeClass** (MultinamePtr qname, [Class](#) *parent)
- [MethodInfo](#) * **makeMethodInfo** ()

Public Attributes

- [u16_t](#) **majorVersion**
- [u16_t](#) **minorVersion**
- [ConstantPool](#) **constantPool**
- std::vector< std::unique_ptr< [MethodInfo](#) > > **methods**
- std::vector< std::unique_ptr< [Metadata](#) > > **metadata**
- std::vector< std::unique_ptr< [Class](#) > > **classes**
- std::vector< std::unique_ptr< [ScriptInfo](#) > > **scripts**
- std::vector< std::unique_ptr< [MethodBody](#) > > **methodBodies**
- std::shared_ptr< [io::GenericReader](#) > **reader**

Protected Member Functions

- void **readConstantPool** ()
- void **readMetadata** ([Metadata](#) &md)
- [u30_t](#) **assignSlotId** (void *ptr)
- void **readTraits** (std::vector< std::shared_ptr< [TraitInfo](#) > > &traits)
- void **decompile** ([MethodInfo](#) &info, std::string name)

- void **decompile** ([MethodInfo](#) &info, std::string name, [ast::CompoundNode](#) *compound)
- void **printConstant** (ConstantKind::Enum kind, [u30_t](#) index)
- void **printTrait** ([TraitInfo](#) *trait)
- void **read** ()

The documentation for this class was generated from the following files:

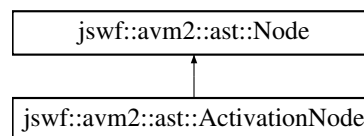
- [jswf/avm2/ABCFile.h](#)
- [jswf/avm2/ABCFile.cpp](#)

8.2 jswf::avm2::ast::ActivationNode Class Reference

Describes an activation object.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::ActivationNode:



Public Member Functions

- virtual std::string **toString** ()

Additional Inherited Members

8.2.1 Detailed Description

Describes an activation object.

Todo What is this?

The documentation for this class was generated from the following file:

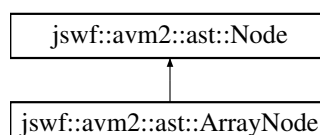
- [jswf/avm2/ast/Node.h](#)

8.3 jswf::avm2::ast::ArrayNode Class Reference

Describes an array literal.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::ArrayNode:



Public Member Functions

- **ArrayNode** (std::vector< NodePtr > args)
- virtual std::string **toString** ()

Public Attributes

- std::vector< NodePtr > **arguments**

8.3.1 Detailed Description

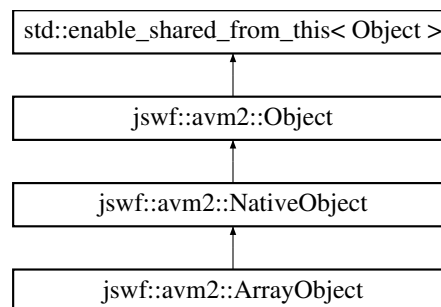
Describes an array literal.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.4 jswf::avm2::ArrayObject Class Reference

Inheritance diagram for jswf::avm2::ArrayObject:



Public Member Functions

- **ArrayObject** (VM *vm, const std::vector< ObjectPtr > &value)
- bool **operator==** (const Object &rhs) const
- std::vector< ObjectPtr > **coerce_a** () const

Public Attributes

- std::vector< ObjectPtr > **value**

Additional Inherited Members

The documentation for this class was generated from the following files:

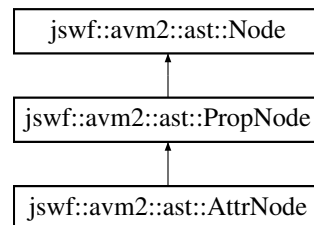
- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.5 jswf::avm2::ast::AttrNode Class Reference

Describes a property retrieved from an object.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::AttrNode:



Public Member Functions

- **AttrNode** (NodePtr obj, MultinamePtr mn, NodePtr ns, NodePtr name)
- virtual std::string **toString** ()

Public Attributes

- NodePtr **obj**

8.5.1 Detailed Description

Describes a property retrieved from an object.

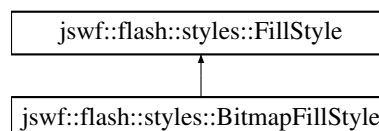
Todo Why not combine this with object?

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.6 jswf::flash::styles::BitmapFillStyle Class Reference

Inheritance diagram for jswf::flash::styles::BitmapFillStyle:



Public Attributes

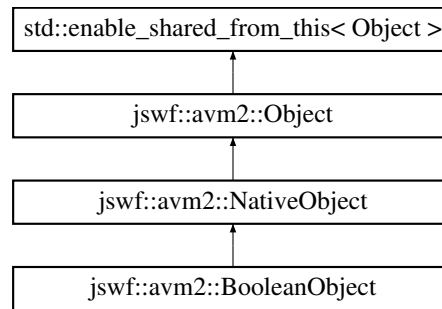
- uint16_t **bitmapId**
- **Matrix** **matrix**
- bool **repeat**
- bool **smooth**

The documentation for this class was generated from the following file:

- jswf/flash/styles/FillStyle.h

8.7 jswf::avm2::BooleanObject Class Reference

Inheritance diagram for jswf::avm2::BooleanObject:



Public Member Functions

- **BooleanObject** (**VM** *vm, const bool &value)
- bool **operator==** (const **Object** &rhs) const
- bool **coerce_b** () const
- std::string **coerce_s** () const
- double **coerce_d** () const

Public Attributes

- bool **value**

Additional Inherited Members

The documentation for this class was generated from the following files:

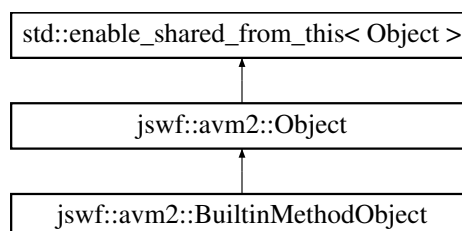
- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.8 jswf::avm2::BuiltinMethodObject Class Reference

Represents a method that is provided by the runtime.

```
#include <VM.h>
```

Inheritance diagram for jswf::avm2::BuiltinMethodObject:



Public Member Functions

- **BuiltinMethodObject** ([VM](#) *vm, builtin_method_t *value)
- std::string **coerce_s** () const
- ObjectPtr **ecmaCall** ([VM](#) &vm, std::vector< ObjectPtr > &args) const

Public Attributes

- builtin_method_t * **value**

Additional Inherited Members

8.8.1 Detailed Description

Represents a method that is provided by the runtime.

The documentation for this class was generated from the following files:

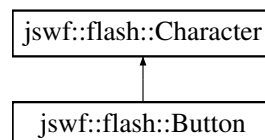
- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.9 jswf::flash::Button Class Reference

Represents a `BUTTON` character.

```
#include <Button.h>
```

Inheritance diagram for jswf::flash::Button:



Public Types

- enum **StateEnum** { **UpState** = 0, **OverState** = 1, **DownState** = 2, **HitTestState** = 3 }

Public Attributes

- [Frame](#) **frames** [4]
- bool **trackAsMenu** = false

8.9.1 Detailed Description

Represents a `BUTTON` character.

The documentation for this class was generated from the following file:

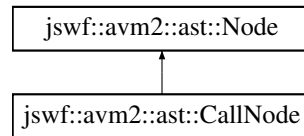
- jswf/flash/Button.h

8.10 jswf::avm2::ast::CallNode Class Reference

Describes a call to a function / method.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::CallNode:



Public Member Functions

- **CallNode** (NodePtr method, std::vector< NodePtr > args)
- virtual std::string **toString** ()

Public Attributes

- NodePtr **method**
- std::vector< NodePtr > **arguments**

8.10.1 Detailed Description

Describes a call to a function / method.

The documentation for this class was generated from the following file:

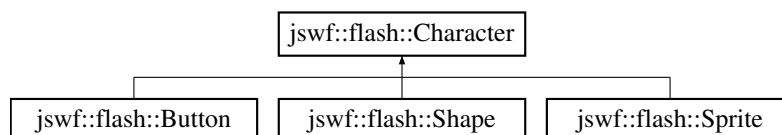
- jswf/avm2/ast/Node.h

8.11 jswf::flash::Character Class Reference

Represents a character for the document's `DICTIONARY`.

```
#include <Character.h>
```

Inheritance diagram for jswf::flash::Character:



Public Attributes

- `avm2::Class` * **avm2Class** = NULL
- uint16_t **id**

8.11.1 Detailed Description

Represents a character for the document's `DICTIONARY`.

The documentation for this class was generated from the following file:

- `jswf/flash/Character.h`

8.12 jswf::avm2::Class Class Reference

Public Attributes

- `ABCFile` * **file**
- `Class` * **parent**
- `VM` * **vm**
- `ClassInfo` **cinfo**
- `InstanceInfo` **iinfo**
- `TraitMap` **traitMap**
- `SlotMap` **slotMap**

The documentation for this class was generated from the following file:

- `jswf/avm2/ABCFile.h`

8.13 jswf::avm2::ClassInfo Struct Reference

Public Attributes

- `MethodInfo` * **initializer**
- `std::vector< std::shared_ptr< TraitInfo > >` **traits**

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

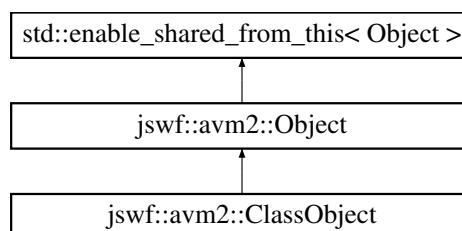
- `jswf/avm2/ABCFile.h`

8.14 jswf::avm2::ClassObject Class Reference

Represents a class.

```
#include <VM.h>
```

Inheritance diagram for `jswf::avm2::ClassObject`:



Public Member Functions

- **ClassObject** ([VM](#) *vm, [Class](#) *value)
- std::string **coerce_s** () const

Public Attributes

- [Class](#) * **value**

Additional Inherited Members

8.14.1 Detailed Description

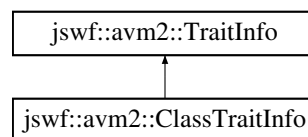
Represents a class.

The documentation for this class was generated from the following files:

- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.15 jswf::avm2::ClassTraitInfo Struct Reference

Inheritance diagram for jswf::avm2::ClassTraitInfo:



Public Attributes

- [u30_t](#) **slotId**
- [ClassInfo](#) * **classInfo**

Additional Inherited Members

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

- jswf/avm2/TraitInfo.h

8.16 jswf::flash::ColorTransform Struct Reference

Represents CXFORM and CXFORMWITHALPHA records.

```
#include <Header.h>
```

Public Attributes

- `sb_t rM` = 256
- `sb_t rA` = 0
- `sb_t gM` = 256
- `sb_t gA` = 0
- `sb_t bM` = 256
- `sb_t bA` = 0
- `sb_t aM` = 256
- `sb_t aA` = 0

8.16.1 Detailed Description

Represents CXFORM and CXFORMWITHALPHA records.

For each channel v from r, g, b, a , the transformed value v' can be computed as follows:

$$v' = \max(0, \min((v * vM / 256) + vA, 255))$$

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

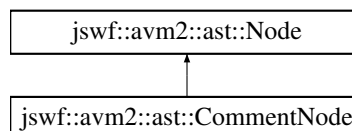
- `jswf/flash/Header.h`

8.17 jswf::avm2::ast::CommentNode Class Reference

Describes a comment statement.

```
#include <Node.h>
```

Inheritance diagram for `jswf::avm2::ast::CommentNode`:



Public Member Functions

- **CommentNode** (`std::string comment`)
- virtual `std::string toString ()`

Public Attributes

- `std::string comment`

8.17.1 Detailed Description

Describes a comment statement.

The documentation for this class was generated from the following file:

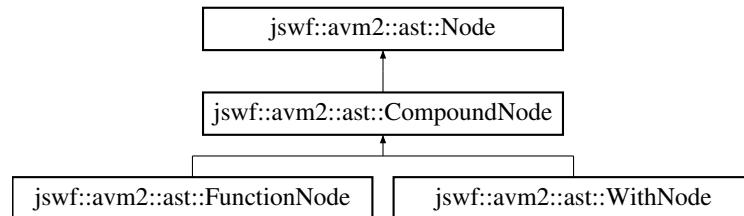
- `jswf/avm2/ast/Node.h`

8.18 jswf::avm2::ast::CompoundNode Class Reference

Describes a node that contains statements.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::CompoundNode:



Public Member Functions

- **CompoundNode** (int precedence)
- virtual std::string **toString** ()
- virtual std::string **toIntendedString** (int intend)

Public Attributes

- [CompoundNode](#) * **parent**
- std::vector< NodePtr > **body**

8.18.1 Detailed Description

Describes a node that contains statements.

Todo Make a statement node?

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.19 jswf::flash::Compression Struct Reference

Provides [Compression::Enum](#).

```
#include <Header.h>
```

Public Types

- enum [Enum](#) { **Uncompressed**, **ZLib** }

Describes the kinds of compressions used by SWF documents.

8.19.1 Detailed Description

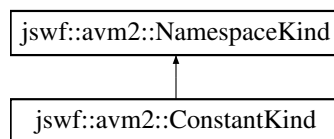
Provides [Compression::Enum](#).

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

- `jswf/flash/Header.h`

8.20 `jswf::avm2::ConstantKind` Struct Reference

Inheritance diagram for `jswf::avm2::ConstantKind`:



Public Types

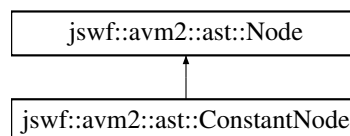
- enum **Enum** : `u8_t` {
IntKind = 0x03, **UIntKind** = 0x04, **DoubleKind** = 0x06, **UTF8Kind** = 0x01,
FalseKind = 0x0a, **TrueKind** = 0x0b, **NullKind** = 0x0c, **UndefinedKind** = 0x00 }

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

- `jswf/avm2/ConstantKind.h`

8.21 `jswf::avm2::ast::ConstantNode` Class Reference

Inheritance diagram for `jswf::avm2::ast::ConstantNode`:



Public Member Functions

- **ConstantNode** (`const std::string &str`)
- virtual `std::string toString` ()

Public Attributes

- `std::string value`

The documentation for this class was generated from the following file:

- `jswf/avm2/ast/Node.h`

8.22 jswf::avm2::ConstantPool Struct Reference

Public Member Functions

- [u30_t](#) **indexDouble** (double d)

Public Attributes

- std::vector< [s32_t](#) > **integers**
- std::vector< [u32_t](#) > **uintegers**
- std::vector< [d64_t](#) > **doubles**
- std::vector< [string](#) > **strings**
- std::vector< NamespacePtr > **namespaces**
- std::vector< NamespaceSetPtr > **namespaceSets**
- std::vector< MultinamePtr > **multinames**

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

- jswf/avm2/ABCFile.h

8.23 jswf::render::Context Struct Reference

```
#include <Render.h>
```

Public Attributes

- uint16_t **w**
- uint16_t **h**
- uint32_t * **buffer**
- uint32_t * **clip** = NULL
- [flash::Matrix](#) **matrix**
- [flash::ColorTransform](#) **colorTransform**
- [flash::Document](#) * **document**

8.23.1 Detailed Description

Bug Lines not rendering.

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

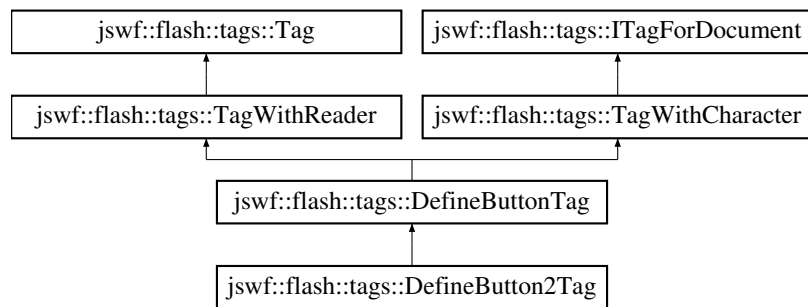
- jswf/render/Render.h

8.24 jswf::flash::tags::DefineButton2Tag Class Reference

Extends [DefineButtonTag](#) with support for `TrackAsMenu`.

```
#include <DefineButton2Tag.h>
```

Inheritance diagram for jswf::flash::tags::DefineButton2Tag:



Public Member Functions

- **DefineButton2Tag** (tag_type_t t, std::string &p)
- **DefineButton2Tag** (tag_type_t t, std::string &p, bool)

Protected Member Functions

- virtual void [readBetween](#) ()

Additional Inherited Members

8.24.1 Detailed Description

Extends [DefineButtonTag](#) with support for `TrackAsMenu`.

Todo "by allowing any state transition to trigger actions."... what?

8.24.2 Member Function Documentation

8.24.2.1 virtual void `jswf::flash::tags::DefineButton2Tag::readBetween ()` `[inline]`, `[protected]`, `[virtual]`

See also

[DefineShapeTag::readBetween](#)

Reimplemented from [jswf::flash::tags::DefineButtonTag](#).

The documentation for this class was generated from the following file:

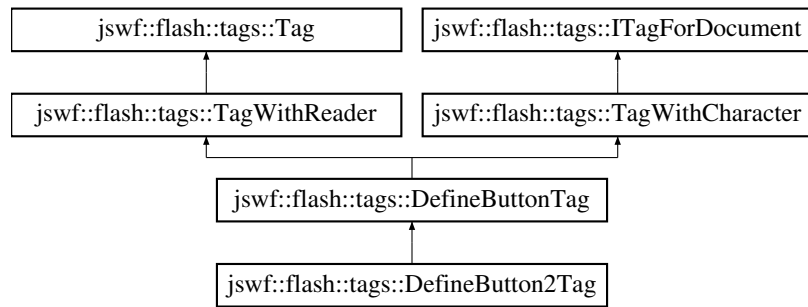
- `jswf/flash/tags/DefineButton2Tag.h`

8.25 jswf::flash::tags::DefineButtonTag Class Reference

Parses a `BUTTON` record that is to be added to the document's `DICTIONARY`.

```
#include <DefineButtonTag.h>
```

Inheritance diagram for `jswf::flash::tags::DefineButtonTag`:



Public Member Functions

- **DefineButtonTag** (tag_type_t t, std::string &p)
- **DefineButtonTag** (tag_type_t t, std::string &p, bool)

Public Attributes

- [Button](#) * [button](#)
The button described by this tag.

Protected Member Functions

- bool [readButtonRecord](#) ()
Reads a 'BUTTONRECORD'.
- virtual void [readBetween](#) ()
- void [read](#) ()
Instantiates [button](#) and parses the payload.

8.25.1 Detailed Description

Parses a `BUTTON` record that is to be added to the document's `DICTIONARY`.

8.25.2 Member Function Documentation

8.25.2.1 void jswf::flash::tags::DefineButtonTag::read () [inline],[protected]

Instantiates [button](#) and parses the payload.

See also

[readBetween](#)
[readButtonRecord](#)

8.25.2.2 virtual void jswf::flash::tags::DefineButtonTag::readBetween () [inline],[protected],[virtual]

See also

[DefineShapeTag::readBetween](#)

Reimplemented in [jswf::flash::tags::DefineButton2Tag](#).

8.25.2.3 `bool jswf::flash::tags::DefineButtonTag::readButtonRecord () [inline], [protected]`

Reads a 'BUTTONRECORD'.

The changes to the frame are applied to [button](#) .

Returns

'true' if further records follow, 'false' if this was the last record.

Exceptions

<i>(TODO)</i>	if the reserved field was non-zero.
---------------	-------------------------------------

See also

[read](#)

The documentation for this class was generated from the following file:

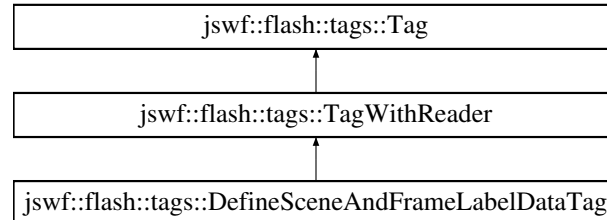
- `jswf/flash/tags/DefineButtonTag.h`

8.26 jswf::flash::tags::DefineSceneAndFrameLabelDataTag Class Reference

Carries [Scenes](#) and [FrameLabels](#).

```
#include <DefineSceneAndFrameLabelDataTag.h>
```

Inheritance diagram for `jswf::flash::tags::DefineSceneAndFrameLabelDataTag`:



Public Member Functions

- **DefineSceneAndFrameLabelDataTag** (`tag_type_t t`, `std::string &p`)

Public Attributes

- `std::vector< Scene > scenes`
The [scenes](#) that are described by this tag.
- `std::vector< FrameLabel > frameLabels`
The [frame labels](#) that are described by this tag.

8.26.1 Detailed Description

Carries [Scenes](#) and [FrameLabels](#).

The documentation for this class was generated from the following file:

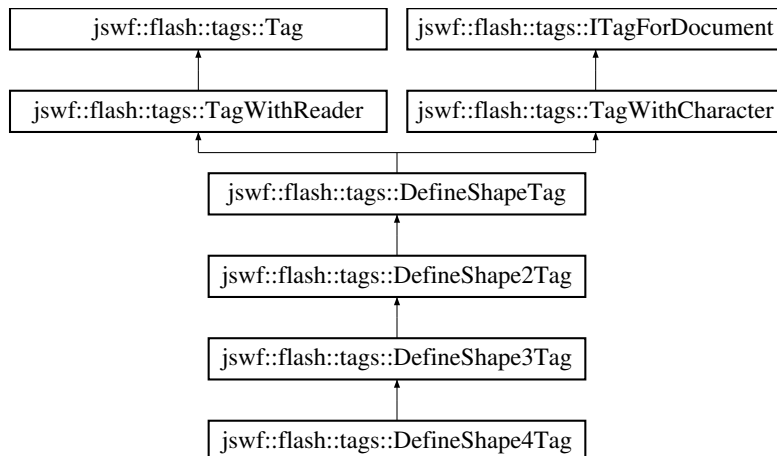
- `jswf/flash/tags/DefineSceneAndFrameLabelDataTag.h`

8.27 jswf::flash::tags::DefineShape2Tag Class Reference

Extends [DefineShapeTag](#) with support for up to 65534 (0xffff) elements for FillStyleArray and LineStyleArray.

```
#include <DefineShape2Tag.h>
```

Inheritance diagram for jswf::flash::tags::DefineShape2Tag:



Public Member Functions

- **DefineShape2Tag** (tag_type_t t, std::string &p)
- **DefineShape2Tag** (tag_type_t t, std::string &p, bool)

Protected Member Functions

- virtual void [readBetween](#) ()
Implemented by subclasses to perform reads between 'Bounds' and 'FillStyleArray'.
- virtual uint16_t [readArrayCount](#) ()
Reads an array count from the payload stream.

Additional Inherited Members

8.27.1 Detailed Description

Extends [DefineShapeTag](#) with support for up to 65534 (0xffff) elements for FillStyleArray and LineStyleArray.

8.27.2 Member Function Documentation

8.27.2.1 virtual uint16_t jswf::flash::tags::DefineShape2Tag::readArrayCount () [inline], [protected], [virtual]

Reads an array count from the payload stream.

Subclasses can override this to add support for longer arrays.

Exceptions

<i>(TODO)</i>	ExceptionClass when count == 0xff
---------------	-----------------------------------

Returns

The count in [0;0xff)

See also

[readLineStyleArray](#)
[readFillStyleArray](#)

<

Todo Document this. Especially throw.

Reimplemented from [jswf::flash::tags::DefineShapeTag](#).

The documentation for this class was generated from the following file:

- [jswf/flash/tags/DefineShape2Tag.h](#)

8.28 jswf::flash::tags::DefineShape3Tag Class Reference

Extends [DefineShape2Tag](#) with support for transparency in colors by using [Reader::readRGBA](#) instead of [Reader::readRGB](#).

```
#include <DefineShape3Tag.h>
```

Inheritance diagram for [jswf::flash::tags::DefineShape3Tag](#):



Public Member Functions

- **DefineShape3Tag** (tag_type_t t, std::string &p)
- **DefineShape3Tag** (tag_type_t t, std::string &p, bool)

Protected Member Functions

- virtual void [readBetween](#) ()

Implemented by subclasses to perform reads between 'Bounds' and 'FillStyleArray'.

- virtual void [readColor](#) (RGBA &rgba)

Reads a color from the payload stream.

Additional Inherited Members

8.28.1 Detailed Description

Extends [DefineShape2Tag](#) with support for transparency in colors by using [Reader::readRGBA](#) instead of [Reader::readRGB](#).

8.28.2 Member Function Documentation

8.28.2.1 virtual void [jswf::flash::tags::DefineShape3Tag::readColor](#) (RGBA & rgba) [inline], [protected], [virtual]

Reads a color from the payload stream.

Subclasses can override this to add support for other color schemes (e. G. [RGBA](#))

Parameters

out	rgba	The RGBA-field to read into.
-----	------	------------------------------

See also

[readFillStyle](#)
[readLineStyle](#)

Reimplemented from [jswf::flash::tags::DefineShapeTag](#).

The documentation for this class was generated from the following file:

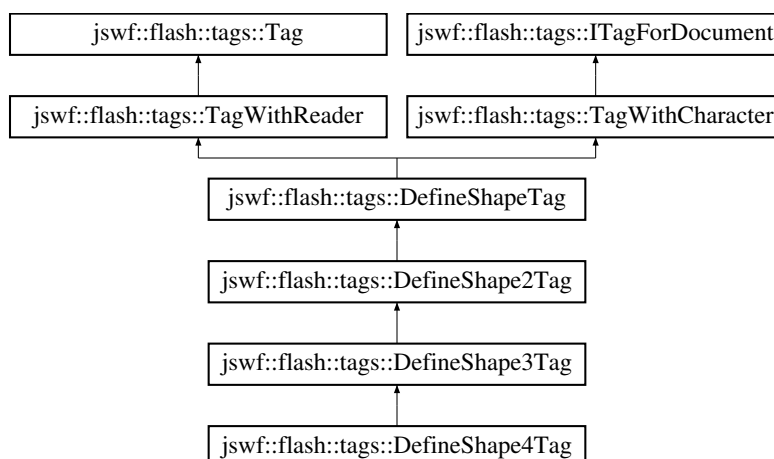
- [jswf/flash/tags/DefineShape3Tag.h](#)

8.29 jswf::flash::tags::DefineShape4Tag Class Reference

Extends [DefineShape3Tag](#) with support for `LINESTYLE2`.

```
#include <DefineShape4Tag.h>
```

Inheritance diagram for [jswf::flash::tags::DefineShape4Tag](#):



Public Member Functions

- **DefineShape4Tag** (tag_type_t t, std::string &p)

Additional Inherited Members

8.29.1 Detailed Description

Extends [DefineShape3Tag](#) with support for `LINESTYLE2`.

The documentation for this class was generated from the following file:

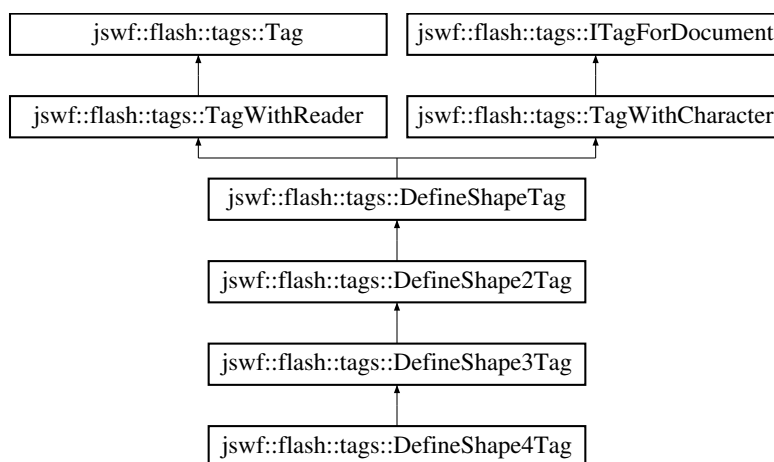
- jswf/flash/tags/DefineShape4Tag.h

8.30 jswf::flash::tags::DefineShapeTag Class Reference

Parses a `SHAPE` record that is to be added to the document's `DICTIONARY`.

```
#include <DefineShapeTag.h>
```

Inheritance diagram for jswf::flash::tags::DefineShapeTag:



Public Member Functions

- [DefineShapeTag](#) (tag_type_t t, std::string &p)
Constructs a [DefineShapeTag](#) and parses the payload using 'read'.
- [DefineShapeTag](#) (tag_type_t t, std::string &p, bool)
Constructs a [DefineShapeTag](#) without parsing the payload.

Public Attributes

- [Shape](#) * shape
The shape we are projecting the 'SHAPE RECORD's we read upon.

Protected Member Functions

- virtual void [readColor](#) (RGBA &rgba)

- Reads a color from the payload stream.*
- virtual uint16_t [readArrayCount](#) ()
Reads an array count from the payload stream.
- [styles::FillStyle](#) * [readFillStyle](#) ()
Reads a FillStyle from the payload stream.
- void [readFillStyleArray](#) ()
Reads the FillStyleArray used by the following drawing operations.
- virtual [styles::LineStyle](#) * [readLineStyle](#) ()
Reads a LineStyle from the payload stream.
- void [readLineStyleArray](#) ()
Reads the LineStyleArray used by the following drawing operations.
- void [readEdgeRecord](#) ()
Reads an 'Edge Record', the actions of which are projected on our shape.
- bool [readShapeRecord](#) (uint8_t &fbits, uint8_t &lbits)
Reads a SHAPE_RECORD, the actions of which are projected on our shape.
- virtual void [readBetween](#) ()
Implemented by subclasses to perform reads between 'Bounds' and 'FillStyleArray'.
- void [read](#) ()
Parses the payload.

Protected Attributes

- std::vector< [styles::FillStylePtr](#) > [fillStyles](#)
FillStyleArray used for drawing operations.
- std::vector< [styles::LineStylePtr](#) > [lineStyles](#)
LineStyleArray used for drawing operations.
- uint32_t [fillCounter](#) = 0
Used to assign unique identifiers to styles (drawing order)
- uint32_t [lineCounter](#) = 0
Used to assign unique identifiers to styles (drawing order)

8.30.1 Detailed Description

Parses a SHAPE record that is to be added to the document's DICTIONARY.

8.30.2 Constructor & Destructor Documentation

8.30.2.1 `jswf::flash::tags::DefineShapeTag::DefineShapeTag (tag_type_t t, std::string & p) [inline]`

Constructs a [DefineShapeTag](#) and parses the payload using 'read'.

See also

[read](#)

8.30.2.2 `jswf::flash::tags::DefineShapeTag::DefineShapeTag (tag_type_t t, std::string & p, bool) [inline]`

Constructs a [DefineShapeTag](#) without parsing the payload.

Used by subclasses so they can call [read](#) with the polymorphic [readBetween](#) .

Parameters

<code>in</code>	<code>bool</code>	ignored
-----------------	-------------------	---------

8.30.3 Member Function Documentation

8.30.3.1 `virtual uint16_t jswf::flash::tags::DefineShapeTag::readArrayCount ()` `[inline]`, `[protected]`, `[virtual]`

Reads an array count from the payload stream.

Subclasses can override this to add support for longer arrays.

Exceptions

<code>(TODO)</code>	ExceptionClass when count == 0xff
---------------------	-----------------------------------

Returns

The count in [0;0xff)

See also

[readLineStyleArray](#)
[readFillStyleArray](#)

Reimplemented in [jswf::flash::tags::DefineShape2Tag](#).

8.30.3.2 `virtual void jswf::flash::tags::DefineShapeTag::readColor (RGBA & rgba)` `[inline]`, `[protected]`, `[virtual]`

Reads a color from the payload stream.

Subclasses can override this to add support for other color schemes (e. G. [RGBA](#))

Parameters

<code>out</code>	<code>rgba</code>	The RGBA-field to read into.
------------------	-------------------	------------------------------

See also

[readFillStyle](#)
[readLineStyle](#)

Reimplemented in [jswf::flash::tags::DefineShape3Tag](#).

8.30.3.3 `void DefineShapeTag::readEdgeRecord ()` `[protected]`

Reads an 'Edge Record', the actions of which are projected on our shape.

See also

[shape](#)

8.30.3.4 `FillStyle * DefineShapeTag::readFillStyle ()` `[protected]`

Reads a FillStyle from the payload stream.

Returns

A pointer to a newly created FillStyle on the heap.

Todo Some of these styles should *only* be implemented *in subclasses*.

8.30.3.5 void DefineShapeTag::readFillStyleArray () [protected]

Reads the FillStyleArray used by the following drawing operations.

See also

[fillStyles](#)
[readFillStyle](#)

8.30.3.6 LineStyle * DefineShapeTag::readLineStyle () [protected], [virtual]

Reads a LineStyle from the payload stream.

Returns

A pointer to a newly created LineStyle on the heap.

8.30.3.7 void DefineShapeTag::readLineStyleArray () [protected]

Reads the LineStyleArray used by the following drawing operations.

See also

[lineStyles](#)
[readLineStyle](#)

8.30.3.8 bool DefineShapeTag::readShapeRecord (uint8_t & fbits, uint8_t & lbits) [protected]

Reads a SHAPERECORD, the actions of which are projected on our shape.

Parameters

<i>in, out</i>	<i>fbits, lbits</i>	nbits for FillStyle and LineStyle, changed upon StateNewStyles
----------------	---------------------	--

Returns

Whether other records follow after this record (false means this was the last record)

Exceptions

<i>std::out_of_range</i>	Thrown if a FillStyle or LineStyle is referenced that does not exist (i. e. if the SHAPERECORD is invalid).
--------------------------	---

See also

[Shape](#)

The documentation for this class was generated from the following files:

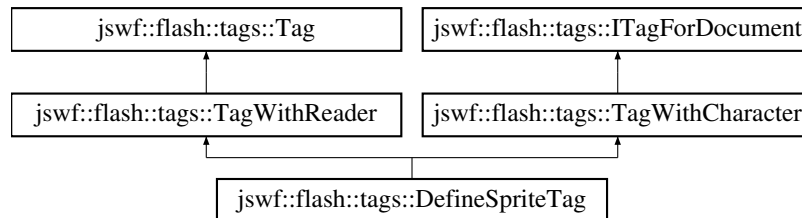
- jswf/flash/tags/DefineShapeTag.h
- jswf/flash/tags/DefineShapeTag.cpp

8.31 jswf::flash::tags::DefineSpriteTag Class Reference

Parses a `SPRITE` record that is to be added to the document's `DICTIONARY`.

```
#include <DefineSpriteTag.h>
```

Inheritance diagram for `jswf::flash::tags::DefineSpriteTag`:



Public Member Functions

- **DefineSpriteTag** (tag_type_t t, std::string &p)

Public Attributes

- [Sprite](#) * **sprite**

8.31.1 Detailed Description

Parses a `SPRITE` record that is to be added to the document's `DICTIONARY`.

The documentation for this class was generated from the following file:

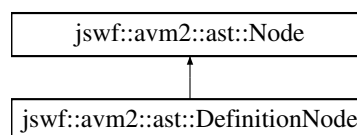
- `jswf/flash/tags/DefineSpriteTag.h`

8.32 jswf::avm2::ast::DefinitionNode Class Reference

Describes a declaration of a local variable.

```
#include <Node.h>
```

Inheritance diagram for `jswf::avm2::ast::DefinitionNode`:



Public Member Functions

- **DefinitionNode** (NodePtr n)
- virtual std::string **toString** ()

Public Attributes

- NodePtr **localNode**

8.32.1 Detailed Description

Describes a declaration of a local variable.

Todo This should be `DeclarationNode`

The documentation for this class was generated from the following file:

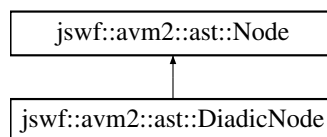
- `jswf/avm2/ast/Node.h`

8.33 jswf::avm2::ast::DiadicNode Class Reference

Describes a diadic operation.

```
#include <Node.h>
```

Inheritance diagram for `jswf::avm2::ast::DiadicNode`:



Public Member Functions

- **DiadicNode** (NodePtr right, NodePtr left, std::string op, int p)
- virtual std::string **toString** ()

Public Attributes

- NodePtr **left**
- NodePtr **right**
- std::string **op**

8.33.1 Detailed Description

Describes a diadic operation.

The documentation for this class was generated from the following file:

- `jswf/avm2/ast/Node.h`

8.34 jswf::flash::DisplayListEntry Struct Reference

```
#include <Frame.h>
```

Public Attributes

- uint16_t **characterId**
- avm2::ObjectPtr **avm2Object** = NULL

- `avm2::ObjectPtr onEnterFrame` = NULL
- `bool usePreviousMatrix` = false
Set to true if matrix was altered by a script and has to be kept.
- `bool doesClip` = false
- `uint16_t clipDepth`
- `bool setColorTransform` = false
- `Matrix matrix`
- `ColorTransform colorTransform`

8.34.1 Detailed Description

Todo Should structures implement read/write themselves?

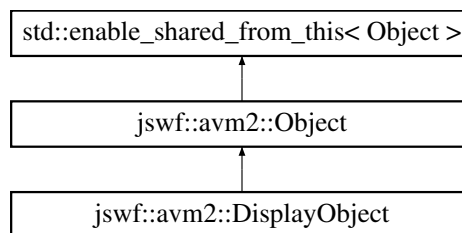
This structure is wrong. `usePreviousMatrix` can be replaced with a `getProperty`-test on our `avm2Object` with a fallback to `matrix`. Also, `avm2Object` will not properly work in nested environments (tree structures). Same thing with modifications by AVM2 (adding/removing `DisplayObjects`).

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

- `jswf/flash/Frame.h`

8.35 jswf::avm2::DisplayObject Class Reference

Inheritance diagram for `jswf::avm2::DisplayObject`:



Public Member Functions

- **DisplayObject** (`VM *vm`, `Class *klass`, `flash::DisplayListEntry *value`)
- **setProperty** (`const Multiname &property`, `const ObjectPtr &value`)

Public Attributes

- `double rotation` = 1
- `double scaleX` = 1
- `double scaleY` = 1
- `flash::DisplayListEntry * value`

Additional Inherited Members

The documentation for this class was generated from the following files:

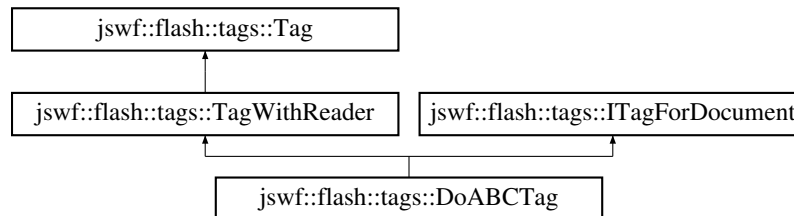
- `jswf/avm2/VM.h`
- `jswf/avm2/VM.cpp`

8.36 jswf::flash::tags::DoABCTag Class Reference

Carries an `ABCFile` to be executed by the `avm2::VM`.

```
#include <DoABCTag.h>
```

Inheritance diagram for `jswf::flash::tags::DoABCTag`:



Public Member Functions

- **DoABCTag** (`tag_type_t t`, `std::string &p`)
- void **applyToDocument** (`Document &document`)

Public Attributes

- `uint32_t` **flags**
- `std::string` **name**
- `std::shared_ptr< avm2::ABCFile >` **abc**

8.36.1 Detailed Description

Carries an `ABCFile` to be executed by the `avm2::VM`.

The documentation for this class was generated from the following file:

- `jswf/flash/tags/DoABCTag.h`

8.37 jswf::flash::Document Class Reference

Parses and represents a `SWF` file.

```
#include <Document.h>
```

Public Member Functions

- **Document** (`std::shared_ptr< jswf::io::GenericReader > reader`)

Public Attributes

- `Header` **header**
The `HEADER` record for this document.
- `avm2::VM` **avm2**
- `std::vector< std::shared_ptr< tags::Tag > >` **tags**

A vector of `shared_ptr`s to the tags this document contains.

- `std::map< uint16_t, std::shared_ptr< Character > > dictionary`

The `DICTIONARY` of this document.

- `Sprite * rootSprite`

Protected Attributes

- `Reader reader`

The `flash::Reader` used by this document.

8.37.1 Detailed Description

Parses and represents a `SWF` file.

Todo `Document::tags` and `Sprite::tags` ? Somewhat redundant.

See also

`ITagForDocument`

8.37.2 Member Data Documentation

8.37.2.1 `Sprite* jswf::flash::Document::rootSprite`

Todo This is the `main_timeline` object! It can also be transformed!

The documentation for this class was generated from the following files:

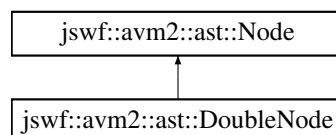
- `jswf/flash/Document.h`
- `jswf/flash/Document.cpp`

8.38 `jswf::avm2::ast::DoubleNode` Class Reference

Describes a node that carries a double literal.

```
#include <Node.h>
```

Inheritance diagram for `jswf::avm2::ast::DoubleNode`:



Public Member Functions

- **DoubleNode** (double dbl)
- virtual `std::string toString ()`

Public Attributes

- double **value**

8.38.1 Detailed Description

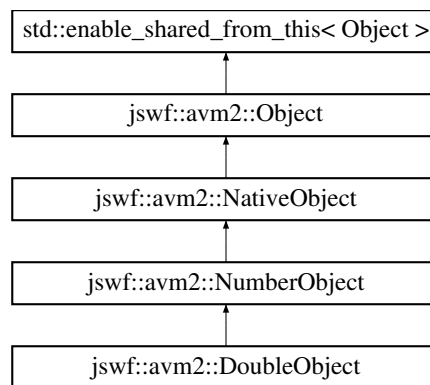
Describes a node that carries a double literal.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.39 jswf::avm2::DoubleObject Class Reference

Inheritance diagram for jswf::avm2::DoubleObject:



Public Member Functions

- **DoubleObject** (**VM** *vm, const double &value)
- bool **operator==** (const **Object** &rhs) const
- double **coerce_d** () const
- bool **coerce_b** () const
- std::string **coerce_s** () const

Public Attributes

- double **value**

Additional Inherited Members

The documentation for this class was generated from the following files:

- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.40 jswf::avm2::ECMAHint Struct Reference

Public Types

- enum **Enum** { **NoHint** = 0, **NumberHint** = 1 }

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

- jswf/avm2/VM.h

8.41 jswf::flash::Edge Struct Reference

Represents an edge between two [Points](#) .

```
#include <Shape.h>
```

Public Attributes

- [Point a](#)
Starting point of the edge.
- [Point b](#)
End point of the edge.

8.41.1 Detailed Description

Represents an edge between two [Points](#) .

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

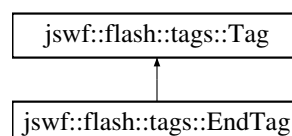
- jswf/flash/Shape.h

8.42 jswf::flash::tags::EndTag Class Reference

Marks the end of a tag array and thereby the end of a [Document](#) or [Sprite](#).

```
#include <EndTag.h>
```

Inheritance diagram for jswf::flash::tags::EndTag:



Public Member Functions

- **EndTag** (tag_type_t t, std::string &p)

Additional Inherited Members

8.42.1 Detailed Description

Marks the end of a tag array and thereby the end of a [Document](#) or [Sprite](#).

See also

[flash::Document](#)
[flash::tags::DefineSpriteTag](#)

The documentation for this class was generated from the following file:

- `jswf/flash/tags/EndTag.h`

8.43 jswf::avm2::ExceptionInfo Struct Reference

Public Attributes

- [u30_t](#) **from**
- [u30_t](#) **to**
- [u30_t](#) **target**
- [u30_t](#) **excType**
- [u30_t](#) **varName**

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

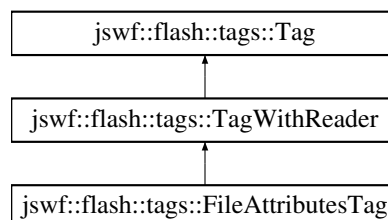
- `jswf/avm2/MethodInfo.h`

8.44 jswf::flash::tags::FileAttributesTag Class Reference

Represents `FileAttribute` tags.

```
#include <FileAttributesTag.h>
```

Inheritance diagram for `jswf::flash::tags::FileAttributesTag`:



Public Member Functions

- **FileAttributesTag** (`tag_type_t t`, `std::string &p`)

Public Attributes

- bool **use_direct_blit**
- bool **use_gpu**
- bool **has_metadata**
- bool **is_as3**
- bool **use_network**

8.44.1 Detailed Description

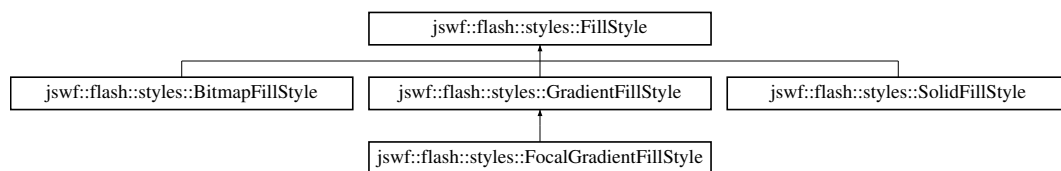
Represents `FileAttribute` tags.

The documentation for this class was generated from the following file:

- `jswf/flash/tags/FileAttributesTag.h`

8.45 jswf::flash::styles::FillStyle Class Reference

Inheritance diagram for `jswf::flash::styles::FillStyle`:



Public Attributes

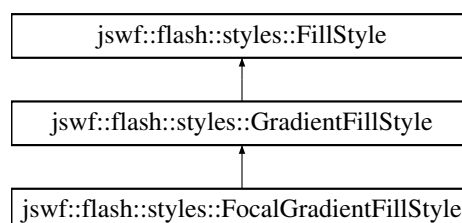
- `uint32_t` **id**

The documentation for this class was generated from the following file:

- `jswf/flash/styles/FillStyle.h`

8.46 jswf::flash::styles::FocalGradientFillStyle Class Reference

Inheritance diagram for `jswf::flash::styles::FocalGradientFillStyle`:



Public Attributes

- `fixed8_t` **focalPoint**

The documentation for this class was generated from the following file:

- jswf/flash/styles/FillStyle.h

8.47 jswf::flash::Frame Class Reference

Public Attributes

- std::map< uint16_t, [DisplayListEntry](#) > **displayList**

The documentation for this class was generated from the following file:

- jswf/flash/Frame.h

8.48 jswf::flash::FrameLabel Struct Reference

FrameLabels for the main timeline.

```
#include <DefineSceneAndFrameLabelDataTag.h>
```

Public Attributes

- [u32_t](#) **frame**
The frame-index, starting at 0.
- [string](#) **label**
The label for the frame.

8.48.1 Detailed Description

FrameLabels for the main timeline.

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

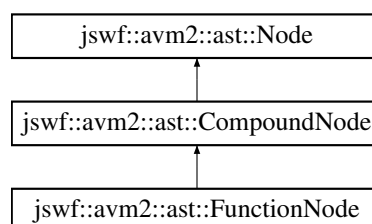
- jswf/flash/tags/DefineSceneAndFrameLabelDataTag.h

8.49 jswf::avm2::ast::FunctionNode Class Reference

Describes a function literal.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::FunctionNode:



Public Member Functions

- **FunctionNode** ([MethodInfo](#) *method, std::string name)
- virtual std::string **toString** ()
- virtual std::string **toIntendedString** (int intend)

Public Attributes

- [MethodInfo](#) * **method**
- std::string **name**

8.49.1 Detailed Description

Describes a function literal.

The documentation for this class was generated from the following file:

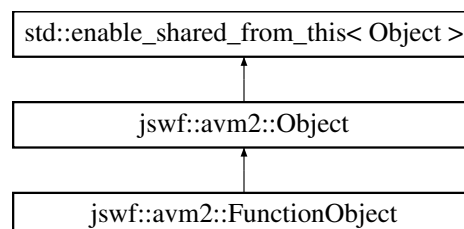
- jsyf/avm2/ast/Node.h

8.50 jsyf::avm2::FunctionObject Class Reference

Represents a `function() {}` that was created using `newfunction`.

```
#include <VM.h>
```

Inheritance diagram for jsyf::avm2::FunctionObject:



Public Member Functions

- **FunctionObject** ([VM](#) *vm, [MethodInfo](#) *value)
- std::string **coerce_s** () const
- ObjectPtr **ecmaCall** ([VM](#) &vm, std::vector< ObjectPtr > &args) const

Public Attributes

- [MethodInfo](#) * **value**

Additional Inherited Members

8.50.1 Detailed Description

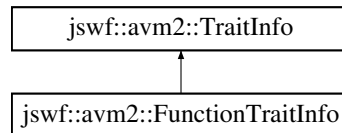
Represents a `function() {}` that was created using `newfunction`.

The documentation for this class was generated from the following files:

- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.51 jswf::avm2::FunctionTraitInfo Struct Reference

Inheritance diagram for jswf::avm2::FunctionTraitInfo:



Public Attributes

- [u30_t](#) slotId
- [MethodInfo](#) * methodInfo

Additional Inherited Members

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

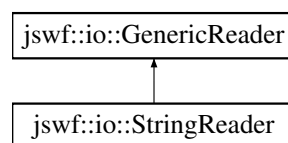
- jswf/avm2/TraitInfo.h

8.52 jswf::io::GenericReader Class Reference

Servers as reader for primitive data-types like integers, doubles and strings.

```
#include <GenericReader.h>
```

Inheritance diagram for jswf::io::GenericReader:



Public Member Functions

- virtual [u8_t](#) readU8 ()=0
Reads a byte-aligned 8-bit unsigned integer.
- virtual [u16_t](#) readU16 ()=0
Reads a byte-aligned 16-bit unsigned integer (little endian)
- virtual [u32_t](#) readU32 ()=0
Reads a byte-aligned 32-bit unsigned integer (little endian)
- virtual [s8_t](#) readS8 ()
Reads a byte-aligned 8-bit signed integer.
- virtual [s16_t](#) readS16 ()
Reads a byte-aligned 16-bit signed integer (little endian)

- virtual `s32_t readS32 ()`
Reads a byte-aligned 32-bit signed integer (little endian)
- virtual `string readString ()=0`
Reads a NUL-terminated string (C-string)
- virtual `string readString (size_t length)=0`
Reads a string of a given length.
- virtual `ub_t readUB (uint8_t nbits)=0`
*Reads a unsigned bit-field of length *nbits**
- virtual `sb_t readSB (uint8_t nbits)`
*Reads a signed bit-field of length *nbits*, sign-extends to fill *sb_t**
- virtual `fb_t readFB (uint8_t nbits)`
Reads a FIXED8.8.
- virtual void `align (uint8_t bytes)=0`
Aligns the reader to a multiple of 'bytes', resets bit-position.
- virtual `string readRemaining ()=0`
Reads all remaining bytes (bit-position rounded up)
- virtual bool `eof ()=0`
Returns true if the end of stream is reached, false otherwise.
- virtual `s32_t readS24 ()=0`
Reads a byte-aligned 24-bit unsigned integer (little endian)
- virtual `u32_t readVU30 ()=0`
Reads a byte-aligned, variable-length encoded 30-bit unsigned integer.
- virtual `u32_t readVU32 ()=0`
Reads a byte-aligned, variable-length encoded 32-bit unsigned integer.
- virtual `s32_t readVS32 ()=0`
Reads a byte-aligned, variable-length encoded 32-bit signed integer.
- virtual `d64_t readD64 ()=0`
Reads a IEE-754 double-precision floating point number.

Public Attributes

- `size_t pos = 0`
Our current byte position.
- `uint8_t bitpos = 0`
Our current bit position [0;8) inside the byte position.

8.52.1 Detailed Description

Servers as reader for primitive data-types like integers, doubles and strings.

8.52.2 Member Data Documentation

8.52.2.1 `size_t jswf::io::GenericReader::pos = 0`

Our current byte position.

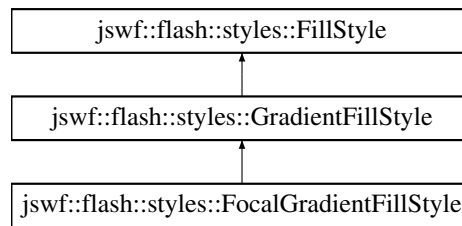
Todo Protected with optional seek.

The documentation for this class was generated from the following files:

- `jswf/io/GenericReader.h`
- `jswf/io/GenericReader.cpp`

8.53 jswf::flash::styles::GradientFillStyle Class Reference

Inheritance diagram for jswf::flash::styles::GradientFillStyle:



Public Attributes

- uint8_t **spreadMode**
- uint8_t **interpolationMode**
- [Matrix](#) **matrix**
- bool **isRadial** = false
- std::vector< [GradientStop](#) > **stops**

The documentation for this class was generated from the following file:

- jswf/flash/styles/FillStyle.h

8.54 jswf::flash::styles::GradientStop Struct Reference

Public Attributes

- uint8_t **ratio**
- [RGBA](#) **color**

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

- jswf/flash/styles/FillStyle.h

8.55 jswf::flash::Header Struct Reference

Represents the `HEADER` record.

```
#include <Header.h>
```

Public Attributes

- [Compression::Enum](#) **compression**
The compression used for the file.
- version_t **version**
The Flash version that this file targets.
- uint32_t **fileSize**
The total file size (including header) after decompression.
- uint16_t **frameRate**

The frame rate of this file in 1/256 FPS.

- `uint16_t frameCount`

The count of frames for the main timeline.

- `Rect rect`

The dimensions of the file in `twips`

8.55.1 Detailed Description

Represents the `HEADER` record.

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

- `jswf/flash/Header.h`

8.56 `jswf::avm2::InstanceInfo` Struct Reference

Public Types

- enum **Flags** : `u8_t` { **ClassSealedFlag** = 0x01, **ClassFinalFlag** = 0x02, **ClassInterfaceFlag** = 0x04, **ClassProtectedNsFlag** = 0x08 }

Public Attributes

- `MultinamePtr` **name**
- `MultinamePtr` **superName**
- `Flags` **flags**
- `NamespacePtr` **protectedNs**
- `std::vector< MultinamePtr >` **interfaces**
- `MethodInfo *` **initializer**
- `std::vector< std::shared_ptr< TraitInfo > >` **traits**

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

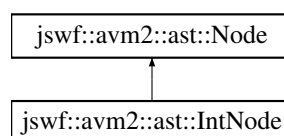
- `jswf/avm2/ABCFile.h`

8.57 `jswf::avm2::ast::IntNode` Class Reference

Describes a node that carries an integer literal.

```
#include <Node.h>
```

Inheritance diagram for `jswf::avm2::ast::IntNode`:



Public Member Functions

- **IntNode** (int v)
- virtual std::string **toString** ()

Public Attributes

- int **value**

8.57.1 Detailed Description

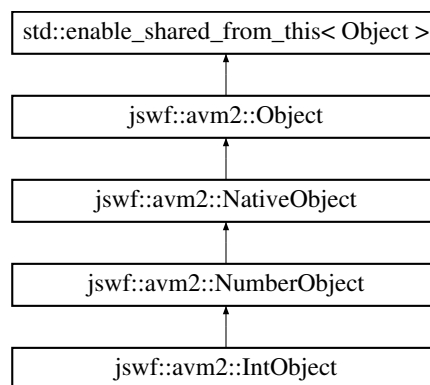
Describes a node that carries an integer literal.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.58 jswf::avm2::IntObject Class Reference

Inheritance diagram for jswf::avm2::IntObject:



Public Member Functions

- **IntObject** (VM *vm, const s32_t &value)
- bool **operator==** (const Object &rhs) const
- s32_t **coerce_i** () const
- std::string **coerce_s** () const
- bool **coerce_b** () const
- double **coerce_d** () const

Public Attributes

- s32_t **value**

Additional Inherited Members

The documentation for this class was generated from the following files:

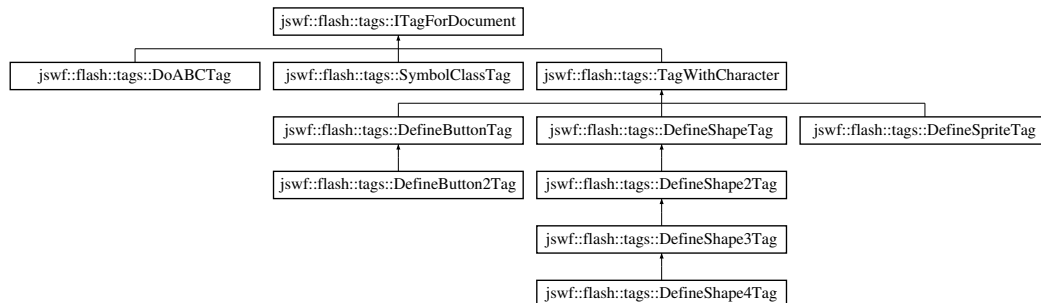
- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.59 jswf::flash::tags::ITagForDocument Class Reference

Interface for TAGs that implement actions to be performed on the [Document](#).

```
#include <ITagForDocument.h>
```

Inheritance diagram for jswf::flash::tags::ITagForDocument:



Public Member Functions

- virtual void **applyToDocument** ([Document](#) &document)=0

8.59.1 Detailed Description

Interface for TAGs that implement actions to be performed on the [Document](#).

The documentation for this class was generated from the following file:

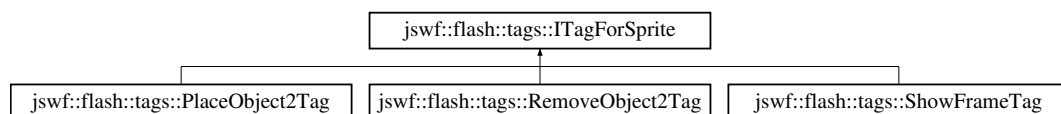
- jswf/flash/tags/ITagForDocument.h

8.60 jswf::flash::tags::ITagForSprite Class Reference

Interface for TAGs that implement actions to be performed on [Sprites](#).

```
#include <ITagForSprite.h>
```

Inheritance diagram for jswf::flash::tags::ITagForSprite:



Public Member Functions

- virtual void **applyToSprite** ([Sprite](#) &sprite)=0

8.60.1 Detailed Description

Interface for TAGs that implement actions to be performed on [Sprites](#).

The documentation for this class was generated from the following file:

- jswf/flash/tags/ITagForSprite.h

8.61 jswf::flash::styles::LineStyle Class Reference

Public Attributes

- uint32_t **id**
- uint16_t **width**
- [RGBA](#) **color**

The documentation for this class was generated from the following file:

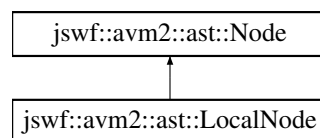
- jswf/flash/styles/LineStyle.h

8.62 jswf::avm2::ast::LocalNode Class Reference

Describes a local register (`this`, arguments and local variables).

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::LocalNode:



Public Member Functions

- **LocalNode** ([u30_t](#) index, [MethodInfo](#) &info)
- virtual std::string **toString** ()

Public Attributes

- bool **isTemporary** = false
- [u30_t](#) **index**
- std::string **name**

8.62.1 Detailed Description

Describes a local register (`this`, arguments and local variables).

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.63 jswf::flash::Matrix Struct Reference

Represents `MATRIX` records.

```
#include <Header.h>
```

Public Attributes

- `fb_t sx` = 1
- `fb_t sy` = 1
- `fb_t r0` = 0
- `fb_t r1` = 0
- `sb_t tx` = 0
- `sb_t ty` = 0

8.63.1 Detailed Description

Represents MATRIX records.

$$x' = x * sx + y * r1 + tx$$

$$y' = y * sy + x * r0 + ty$$

Todo These structures are in the wrong file.

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

- `jswf/flash/Header.h`

8.64 jswf::avm2::Metadata Struct Reference

Public Attributes

- `std::string * name`
- `std::vector< MetadataItem > items`

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

- `jswf/avm2/Metadata.h`

8.65 jswf::avm2::MetadataItem Struct Reference

Public Attributes

- `std::string * key`
- `std::string * value`

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

- `jswf/avm2/Metadata.h`

8.66 jswf::avm2::MethodBody Struct Reference

Public Attributes

- `MethodInfo * method`
- `u30_t maxStack`
- `u30_t localCount`

- [u30_t](#) **initScopeDepth**
- [u30_t](#) **maxScopeDepth**
- [string](#) **code**
- `std::vector< ExceptionInfo >` **exceptions**
- `std::vector< std::shared_ptr< TraitInfo > >` **traits**

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

- `jswf/avm2/MethodInfo.h`

8.67 jswf::avm2::MethodInfo Struct Reference

Public Types

- enum **Flags** : `u8_t` {
NeedsArgumentsFlag = 0x01, **NeedsActivationFlag** = 0x02, **NeedsRestFlag** = 0x04, **HasOptionalFlag** = 0x08,
SetDxnsFlag = 0x40, **HasParamNamesFlag** = 0x80 }

Public Attributes

- [u30_t](#) **paramCount**
- `MultinamePtr` **returnType**
- `std::vector< MultinamePtr >` **paramTypes**
- [string](#) * **name**
- `Flags` **flags**
- `std::vector< OptionDetail >` **options**
- `std::vector< string * >` **paramNames**
- [MethodBody](#) * **body** = NULL
- `builtin_method_t` * **nativeImpl** = NULL
- [ABCFile](#) * **file**

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

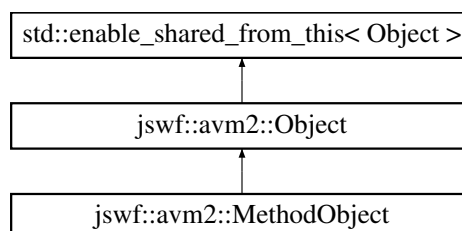
- `jswf/avm2/MethodInfo.h`

8.68 jswf::avm2::MethodObject Class Reference

Represents a method that was created as a trait of an instance or a class.

```
#include <VM.h>
```

Inheritance diagram for `jswf::avm2::MethodObject`:



Public Member Functions

- **MethodObject** ([VM](#) *vm, const ObjectPtr &recv, [MethodInfo](#) *value)
- std::string **coerce_s** () const
- ObjectPtr **ecmaCall** ([VM](#) &vm, std::vector< ObjectPtr > &args) const

Public Attributes

- ObjectPtr **receiver**
- [MethodInfo](#) * **value**

Additional Inherited Members

8.68.1 Detailed Description

Represents a method that was created as a trait of an instance or a class.

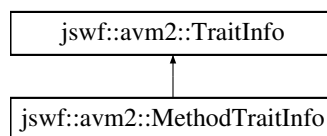
Note that executing `[[Call]]` on a [MethodObject](#) will always override the implicit (receiver) argument.

The documentation for this class was generated from the following files:

- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.69 jswf::avm2::MethodTraitInfo Struct Reference

Inheritance diagram for jswf::avm2::MethodTraitInfo:



Public Attributes

- [u30_t](#) **displd**
- [MethodInfo](#) * **methodInfo**

Additional Inherited Members

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

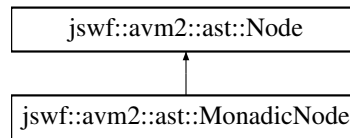
- jswf/avm2/TraitInfo.h

8.70 jswf::avm2::ast::MonadicNode Class Reference

Describes a monadic operation.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::MonadicNode:



Public Member Functions

- **MonadicNode** (NodePtr operand, std::string op, int p)
- virtual std::string **toString** ()

Public Attributes

- NodePtr **operand**
- std::string **op**

8.70.1 Detailed Description

Describes a monadic operation.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.71 jswf::avm2::Multiname Struct Reference

Public Types

- enum **Kind** : u8_t {
QNameKind = 0x07, **QNameAKind** = 0x0D, **RTQNameKind** = 0x0F, **RTQNameAKind** = 0x10,
RTQNameLKind = 0x11, **RTQNameLAKind** = 0x12, **MultinameKind** = 0x09, **MultinameAKind** = 0x0E,
MultinameLKind = 0x1B, **MultinameLAKind** = 0x1C, **InvalidKind** = 0 }

Public Member Functions

- **Multiname** (Kind kind)
- bool **operator==** (const [Multiname](#) &rhs) const
- void **setName** (std::string name)
- void **setNS** (NamespacePtr ns)
- Kind **getKind** () const
- std::string **nameString** () const

Public Attributes

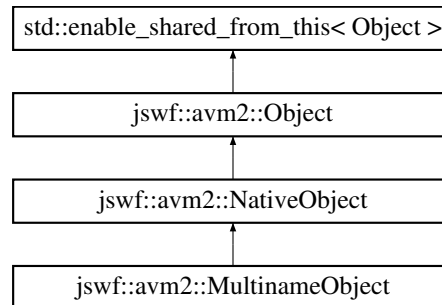
- bool **isAttribute**
- bool **hasName**
- bool **hasNS**
- bool **hasNSSet**
- [string](#) **name**
- NamespacePtr **ns**
- NamespaceSetPtr **nsSet**

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

- `jswf/avm2/Multiname.h`

8.72 `jswf::avm2::MultinameObject` Class Reference

Inheritance diagram for `jswf::avm2::MultinameObject`:



Public Member Functions

- **MultinameObject** (`VM *vm`, const `Multiname` &value)
- bool **operator==** (const `Object` &rhs) const
- `Multiname` **coerce_multiname** () const

Public Attributes

- `Multiname` **value**

Additional Inherited Members

The documentation for this class was generated from the following files:

- `jswf/avm2/VM.h`
- `jswf/avm2/VM.cpp`

8.73 `jswf::avm2::Namespace` Struct Reference

Public Member Functions

- bool **operator==** (const `Namespace` &rhs) const
- bool **operator!=** (const `Namespace` &rhs) const

Public Attributes

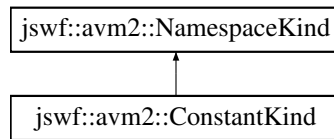
- `NamespaceKind::Enum` **kind**
- `string` **name**

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

- `jswf/avm2/Namespace.h`

8.74 jswf::avm2::NamespaceKind Struct Reference

Inheritance diagram for jswf::avm2::NamespaceKind:



Public Types

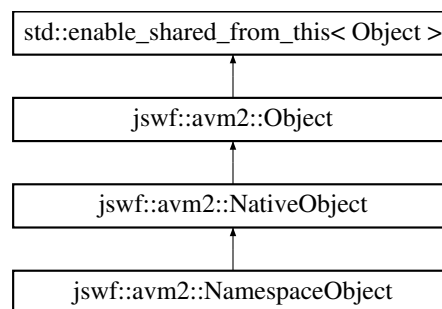
- enum **Enum** : u8_t {
NormalNamespaceKind = 0x08, **PackageNamespaceKind** = 0x16, **PackageInternalNsKind** = 0x17,
ProtectedNamespaceKind = 0x18,
ExplicitNamespaceKind = 0x19, **StaticProtectedNsKind** = 0x1a, **PrivateNamespaceKind** = 0x05 }

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

- jswf/avm2/Namespace.h

8.75 jswf::avm2::NamespaceObject Class Reference

Inheritance diagram for jswf::avm2::NamespaceObject:



Public Member Functions

- **NamespaceObject** (VM *vm, const [Namespace](#) &value)
- bool **operator==** (const [Object](#) &rhs) const
- [Namespace](#) **coerce_ns** () const

Public Attributes

- [Namespace](#) **value**

Additional Inherited Members

The documentation for this class was generated from the following files:

- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.76 jswf::avm2::NamespaceSet Struct Reference

Public Member Functions

- bool **operator==** (const [NamespaceSet](#) &rhs) const
- bool **operator!=** (const [NamespaceSet](#) &rhs) const

Public Attributes

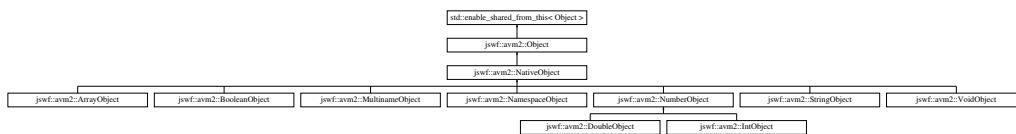
- std::vector< NamespacePtr > **namespaces**

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

- jswf/avm2/Namespace.h

8.77 jswf::avm2::NativeObject Class Reference

Inheritance diagram for jswf::avm2::NativeObject:



Public Member Functions

- **NativeObject** ([VM](#) *vm, [Class](#) *klass)

Additional Inherited Members

The documentation for this class was generated from the following file:

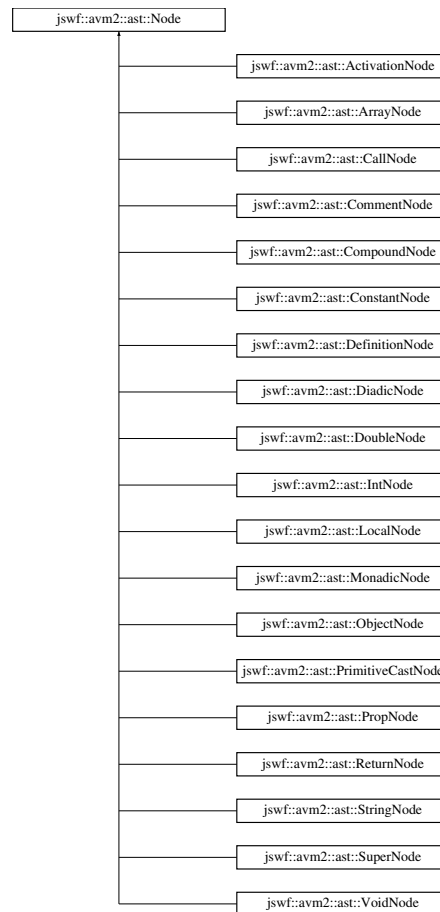
- jswf/avm2/VM.h

8.78 jswf::avm2::ast::Node Class Reference

Serves as super-class for all nodes.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::Node:



Public Member Functions

- **Node** (int precedence)
- virtual std::string **toString** ()=0
- virtual std::string **toIntendedString** (int intend)

Public Attributes

- int **precedence**

8.78.1 Detailed Description

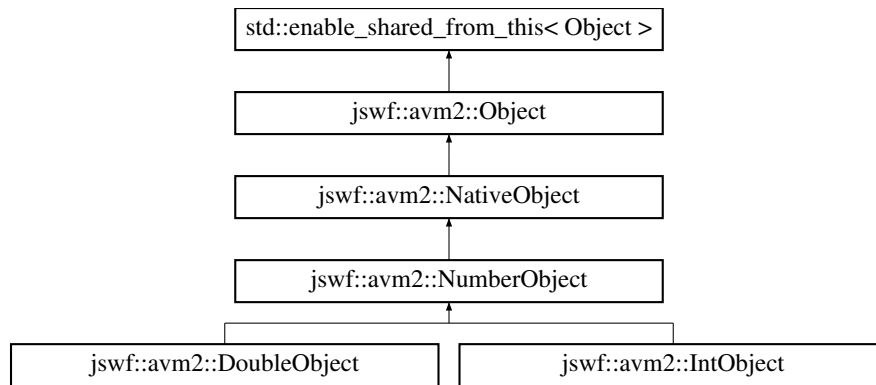
Serves as super-class for all nodes.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.79 jswf::avm2::NumberObject Class Reference

Inheritance diagram for jswf::avm2::NumberObject:



Public Member Functions

- **NumberObject** ([VM](#) *vm, [Class](#) *klass)

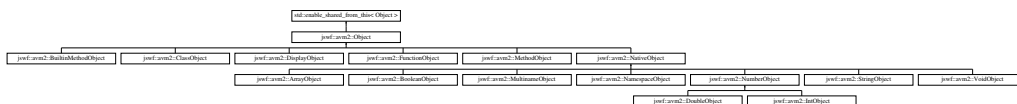
Additional Inherited Members

The documentation for this class was generated from the following file:

- jsfw/avm2/VM.h

8.80 jsfw::avm2::Object Class Reference

Inheritance diagram for jsfw::avm2::Object:



Public Types

- enum **AcResult** { **AcUndefinedResult** = 0, **AcFalseResult** = 1, **AcTrueResult** = 2 }

Public Member Functions

- **Object** ([VM](#) *vm, [Class](#) *klass)
- [TraitMatch](#) **getTraitByName** (const [Multiname](#) &name)
- [TraitMatch](#) **getTraitBySlotId** ([u30_t](#) slotId)
- virtual [ObjectPtr](#) **getProperty** (const [Multiname](#) &property)
- virtual void **setProperty** (const [Multiname](#) &property, const [ObjectPtr](#) &value)
- void **setSlot** ([u30_t](#) slotIndex, const [ObjectPtr](#) &value)
- [ObjectPtr](#) **getSlot** ([u30_t](#) slotIndex) const
- virtual [ObjectPtr](#) **ecmaCall** ([VM](#) &vm, std::vector< [ObjectPtr](#) > &args) const
- bool **hasDeclaredProperty** (const [Multiname](#) &property)
- bool **hasDynamicProperty** (const [Multiname](#) &property)
- bool **hasProperty** (const [Multiname](#) &property)
- virtual std::string **toString** () const
- virtual bool **operator==** (const [Object](#) &rhs) const

- virtual ObjectPtr **ecmaToPrimitive** (ECMAHint::Enum hint=ECMAHint::NoHint)
- virtual AcResult **abstractCompare** (Object &rhs, bool leftFirst=true)
- virtual bool **isNaN** () const
- virtual bool **coerce_b** () const
- virtual [s32_t](#) **coerce_i** () const
- virtual std::string **coerce_s** () const
- virtual [Namespace](#) **coerce_ns** () const
- virtual [Multiname](#) **coerce_multiname** () const
- virtual double **coerce_d** () const
- double **ecmaToNumber** () const
- virtual ObjectPtr **coerce** (Class *newKlass, const ObjectPtr &recv)
- std::string **getPropertyName** (int index) const
- bool **hasNextProperty** (int index) const

Public Attributes

- [VM](#) * **vm**
- [Class](#) * **klass**
- std::map< std::string, ObjectPtr > **properties**
- TraitMap **traitMap**
- SlotMap **slotMap**

The documentation for this class was generated from the following files:

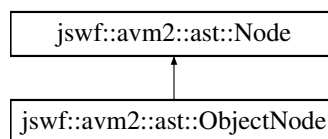
- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.81 jswf::avm2::ast::ObjectNode Class Reference

Describes a hash literal.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::ObjectNode:



Public Member Functions

- **ObjectNode** (std::vector< std::pair< NodePtr, NodePtr >> args)
- virtual std::string **toString** ()

Public Attributes

- std::vector< std::pair
< NodePtr, NodePtr > > **arguments**

8.81.1 Detailed Description

Describes a hash literal.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.82 jswf::avm2::OptionDetail Struct Reference

Public Attributes

- [u30_t](#) **value**
- ConstantKind::Enum **kind**

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

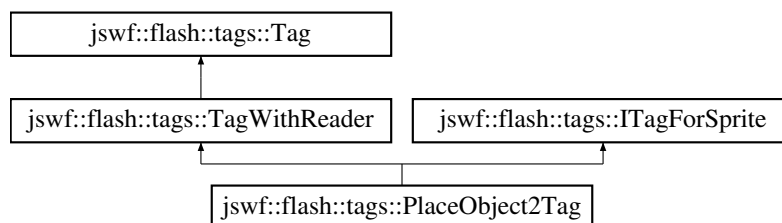
- jswf/avm2/MethodInfo.h

8.83 jswf::flash::tags::PlaceObject2Tag Class Reference

Used to add a [Character](#) to the `DisplayList` or to modify an existing [Character](#) in the `DisplayList`

```
#include <PlaceObject2Tag.h>
```

Inheritance diagram for jswf::flash::tags::PlaceObject2Tag:



Public Member Functions

- void [applyToSprite](#) ([Sprite](#) &sprite)
Applies the changes as described by this tag to the displayList of a given frame.
- [PlaceObject2Tag](#) (tag_type_t t, std::string &p)
Constructs the `TAG` and parses the payload.

Public Attributes

- bool [hasClipActions](#)
Whether `AVM` actions for clip events are specified.
- bool [hasClipDepth](#)
Whether the [Character](#) is used as mask layer.
- bool [hasName](#)
Whether an instance name for the character is specified.
- bool [hasRatio](#)

- Whether a morph-ratio is specified.*

 - bool [hasColorTransform](#)
- Whether a [CXFORMALPHA](#) is specified.*

 - bool [hasMatrix](#)
- Whether a [MATRIX](#) for transformation is specified.*

 - bool [hasCharacter](#)
- Whether a new [Character](#) is given, otherwise an existing [Character](#) is modified.*

 - bool [doesMove](#)
- This field is apparently useless, we read it nevertheless.*

 - uint16_t [depth](#)
- The depth in the [displayList](#) to operate on.*

 - uint16_t [characterId](#)
- A [DICTIONARY](#) -identifier if [hasCharacter](#) is set.*

 - [Matrix](#) [matrix](#)
- A [MATRIX](#) record for transformation if [hasMatrix](#) is set.*

 - uint16_t [ratio](#)
- A morph-ratio if [hasRatio](#) is set.*

 - std::string [name](#)
- A string if [hasName](#) is set.*

 - uint16_t [clipDepth](#)
- The depth up to which this masks if [hasClipDepth](#) is set.*

 - [ColorTransform](#) [colorTransform](#)
- A [CXFORMWITHALPHA](#) if [hasColorTransform](#) is set.*

8.83.1 Detailed Description

Used to add a [Character](#) to the [DisplayList](#) or to modify an existing [Character](#) in the [DisplayList](#)

Todo Implement [PlaceObject](#)

Create a super-class for TAGs that modify the display list.

8.83.2 Member Function Documentation

8.83.2.1 void [jswf::flash::tags::PlaceObject2Tag::applyToSprite](#) ([Sprite](#) & *sprite*) [\[inline\]](#), [\[virtual\]](#)

Applies the changes as described by this tag to the [displayList](#) of a given frame.

Parameters

in, out	<i>frame</i>	The frame, the displayList of which is being altered by this operation.
-------------------------	--------------	---

Implements [jswf::flash::tags::ITagForSprite](#).

The documentation for this class was generated from the following file:

- [jswf/flash/tags/PlaceObject2Tag.h](#)

8.84 jswf::flash::Point Struct Reference

Represents a two-dimensional point.

```
#include <Shape.h>
```

Public Member Functions

- bool `operator==` (const [Point](#) &rhs)
Tests two [Points](#) for equality.
- bool `operator!=` (const [Point](#) &rhs)
Tests two [Points](#) for inequality.

Public Attributes

- [sb_t](#) `x`
The x-coordinate.
- [sb_t](#) `y`
The y-coordinate.

8.84.1 Detailed Description

Represents a two-dimensional point.

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

- `jswf/flash/Shape.h`

8.85 `jswf::flash::Polygon` Struct Reference

Represents a collection of [Edges](#) that form a closed polygon.

```
#include <Shape.h>
```

Public Attributes

- `std::vector< Edge >` `edges`
The vector of [Edges](#).

8.85.1 Detailed Description

Represents a collection of [Edges](#) that form a closed polygon.

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

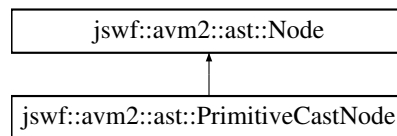
- `jswf/flash/Shape.h`

8.86 `jswf::avm2::ast::PrimitiveCastNode` Class Reference

Describes a cast to a primitive type.

```
#include <Node.h>
```

Inheritance diagram for `jswf::avm2::ast::PrimitiveCastNode`:



Public Member Functions

- **PrimitiveCastNode** (NodePtr value, std::string type)
- virtual std::string **toString** ()

Public Attributes

- NodePtr **value**
- std::string **type**

8.86.1 Detailed Description

Describes a cast to a primitive type.

Todo What about other types?

The documentation for this class was generated from the following file:

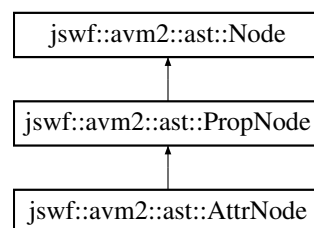
- jswf/avm2/ast/Node.h

8.87 jswf::avm2::ast::PropNode Class Reference

Describes a property.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::PropNode:



Public Member Functions

- **PropNode** (MultinamePtr mn, NodePtr ns, NodePtr name)
- virtual std::string **toString** ()

Public Attributes

- NodePtr **ns**
- NodePtr **name**
- MultinamePtr **multiname**

8.87.1 Detailed Description

Describes a property.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.88 jswf::flash::Reader Class Reference

Servers as reader for complex structures like tags, colors, matrices, etc.

```
#include <Reader.h>
```

Public Member Functions

- [Reader](#) (std::shared_ptr< [jswf::io::GenericReader](#) > r)
Create a [Reader](#) using a [shared_ptr](#) to a [io::GenericReader](#).
- void [readHeader](#) ([Header](#) &header)
Reads a [HEADER](#) record.
- [tags::Tag](#) * [readTag](#) ()
Reads a [TAG](#) record.
- void [readRect](#) ([Rect](#) &rect)
Reads a [RECT](#) record.
- void [readMatrix](#) ([Matrix](#) &matrix)
Reads a [MATRIX](#) record.
- void [readColorTransform](#) ([ColorTransform](#) &colorTransform, bool withAlpha)
Reads a [CXFORM](#) / [CXFORMWITHALPHA](#) record.
- void [readRGB](#) ([RGBA](#) &rgba)
Reads a [RGB](#) record.
- void [readRGBA](#) ([RGBA](#) &rgba)
Reads a [RGBA](#) record.
- void [readARGB](#) ([RGBA](#) &rgba)
Reads a [ARGB](#) record.

Public Attributes

- std::shared_ptr
 < [jswf::io::GenericReader](#) > reader
A [shared_ptr](#) to the [io::GenericReader](#) we read from.

8.88.1 Detailed Description

Servers as reader for complex structures like tags, colors, matrices, etc.

8.88.2 Member Function Documentation

8.88.2.1 void Reader::readARGB ([RGBA](#) & rgba)

Reads a [ARGB](#) record.

Parameters

out	<i>rgba</i>	A reference to the structure to read into.
-----	-------------	--

8.88.2.2 void Reader::readColorTransform (ColorTransform & colorTransform, bool withAlpha)

Reads a CXFORM / CXFORMWITHALPHA record.

Parameters

out	<i>colorTransform</i>	A reference to the structure to read into.
in	<i>withAlpha</i>	true if a CXFORMWITHALPHA should be read, false if a CXFORM should be read.

8.88.2.3 void Reader::readHeader (Header & header)

Reads a HEADER record.

Parameters

out	<i>header</i>	A reference to the structure to read into.
-----	---------------	--

8.88.2.4 void Reader::readMatrix (Matrix & matrix)

Reads a MATRIX record.

Parameters

out	<i>matrix</i>	A reference to the structure to read into.
-----	---------------	--

8.88.2.5 void Reader::readRect (Rect & rect)

Reads a RECT record.

Parameters

out	<i>rect</i>	A reference to the structure to read into.
-----	-------------	--

8.88.2.6 void Reader::readRGB (RGBA & rgba)

Reads a RGB record.

Parameters

out	<i>rgba</i>	A reference to the structure to read into.
-----	-------------	--

8.88.2.7 void Reader::readRGBA (RGBA & rgba)

Reads a [RGBA](#) record.

Parameters

out	rgba	A reference to the structure to read into.
-----	------	--

8.88.2.8 tags::Tag * Reader::readTag ()

Reads a TAG record.

Returns

A pointer to a newly allocated tag object (polymorphic to Tag)

The documentation for this class was generated from the following files:

- jswf/flash/Reader.h
- jswf/flash/Reader.cpp

8.89 jswf::flash::Rect Struct Reference

Represents RECT records.

```
#include <Header.h>
```

Public Attributes

- [sb_t x0](#)
The low x-coordinate.
- [sb_t y0](#)
The low y-coordinate.
- [sb_t x1](#)
The high x-coordinate.
- [sb_t y1](#)
The high y-coordinate.

8.89.1 Detailed Description

Represents RECT records.

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

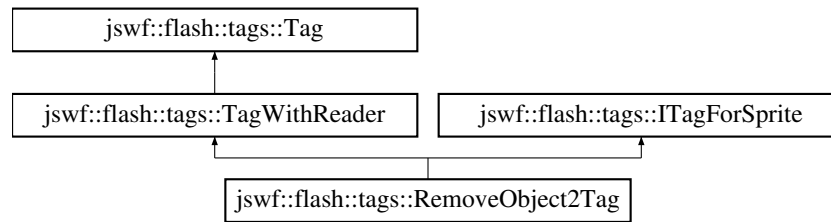
- jswf/flash/Header.h

8.90 jswf::flash::tags::RemoveObject2Tag Class Reference

Used to remove a [Character](#) at a given depth from the `DisplayList`.

```
#include <RemoveObject2Tag.h>
```

Inheritance diagram for jswf::flash::tags::RemoveObject2Tag:



Public Member Functions

- void **applyToSprite** ([Sprite](#) &sprite)
- **RemoveObject2Tag** (tag_type_t t, std::string &p)

Public Attributes

- uint16_t [depth](#)
The depth at which to delete at.

8.90.1 Detailed Description

Used to remove a [Character](#) at a given depth from the `DisplayList`.

Todo Implement `RemoveObject`

The documentation for this class was generated from the following file:

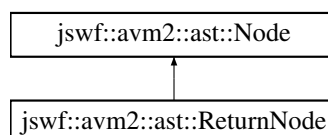
- jswf/flash/tags/RemoveObject2Tag.h

8.91 jswf::avm2::ast::ReturnNode Class Reference

Describes a return statement.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::ReturnNode:



Public Member Functions

- **ReturnNode** (NodePtr [obj](#))
- virtual std::string **toString** ()

Public Attributes

- NodePtr [obj](#)
NULL for returnvoid.

8.91.1 Detailed Description

Describes a return statement.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.92 jswf::flash::RGBA Struct Reference

Represents RGB, [RGBA](#) and ARGB color records.

```
#include <Header.h>
```

Public Attributes

- [uint8_t r](#)
Red channel.
- [uint8_t g](#)
Green channel.
- [uint8_t b](#)
Blue channel.
- [uint8_t a](#)
Alpha channel.

8.92.1 Detailed Description

Represents RGB, [RGBA](#) and ARGB color records.

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

- jswf/flash/Header.h

8.93 jswf::flash::Scene Struct Reference

Scenes for the main timeline.

```
#include <DefineSceneAndFrameLabelDataTag.h>
```

Public Attributes

- [u32_t offset](#)
The frame-offset of the scene, starting at 0.
- [string name](#)
The name for the scene.

8.93.1 Detailed Description

Scenes for the main timeline.

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

- jswf/flash/tags/DefineSceneAndFrameLabelDataTag.h

8.94 jswf::avm2::Scope Class Reference

Public Types

- enum **Kind** { **NormalScopeKind** = 0, **WithScopeKind**, **GlobalScopeKind** }

Public Member Functions

- **Scope** (const ObjectPtr &object, Kind kind)
- bool **hasProperty** (const Multiname &property) const

Public Attributes

- ObjectPtr **object**
- Kind **kind**

The documentation for this class was generated from the following file:

- jswf/avm2/VM.h

8.95 jswf::avm2::ScriptInfo Struct Reference

Public Attributes

- MethodInfo * **initializer**
- std::vector< std::shared_ptr< TraitInfo > > **traits**

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

- jswf/avm2/ABCFile.h

8.96 jswf::flash::Segment Struct Reference

Represents a segment as drawn by a SHAPEWITHSTYLE record line/qline action.

```
#include <Shape.h>
```

Public Attributes

- sb_t **x0**
- sb_t **y0**
- sb_t **x1**
- sb_t **y1**
- bool **isCurved**
- sb_t **cx**
- sb_t **cy**
- styles::LineStylePtr **lineStyle**
- styles::FillStylePtr **fillStyle0**
- styles::FillStylePtr **fillStyle1**

8.96.1 Detailed Description

Represents a segment as drawn by a `SHAPEWITHSTYLE` record `line/qline` action.

Todo Use [Points](#) for the coordinates.

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

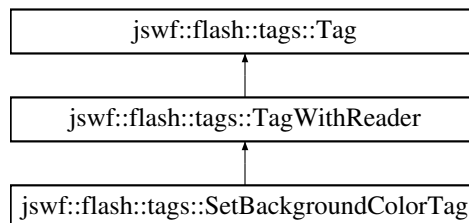
- `jswf/flash/Shape.h`

8.97 jswf::flash::tags::SetBackgroundColorTag Class Reference

Defines the background color of a SWF.

```
#include <SetBackgroundColorTag.h>
```

Inheritance diagram for `jswf::flash::tags::SetBackgroundColorTag`:



Public Member Functions

- **SetBackgroundColorTag** (`tag_type_t t`, `std::string &p`)

Public Attributes

- [RGBA](#) `color`

8.97.1 Detailed Description

Defines the background color of a SWF.

The documentation for this class was generated from the following file:

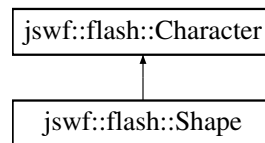
- `jswf/flash/tags/SetBackgroundColorTag.h`

8.98 jswf::flash::Shape Class Reference

Represents a `SHAPE` character.

```
#include <Shape.h>
```

Inheritance diagram for `jswf::flash::Shape`:



Public Member Functions

- void **polygonize** ()
- void **moveTo** ([sb_t](#) x, [sb_t](#) y)
- void **lineTo** ([sb_t](#) dx, [sb_t](#) dy)
- void **qlineTo** ([sb_t](#) cx, [sb_t](#) cy, [sb_t](#) ax, [sb_t](#) ay)
- void **setLineStyle** (styles::LineStylePtr &style)
- void **setFillStyle0** (styles::FillStylePtr &style)
- void **setFillStyle1** (styles::FillStylePtr &style)
- void **appendFillStyle** (std::stringstream &buffer, styles::FillStylePtr &ptr)
- std::string **toJS** ()

Public Attributes

- std::vector< [Segment](#) > **segments**
- std::map< styles::FillStylePtr, std::vector< [Polygon](#) > > **polygons**
- [Rect](#) **bounds**
- [Rect](#) **edgeBounds**
- bool **usesFillWindingRule** = false
- bool **usesNonScalingStrokes** = false
- bool **usesScalingStrokes** = true

8.98.1 Detailed Description

Represents a `SHAPE` character.

The documentation for this class was generated from the following file:

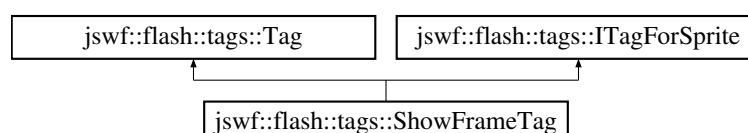
- `jswf/flash/Shape.h`

8.99 jswf::flash::tags::ShowFrameTag Class Reference

Finalizes the current temporary frame and adds it to the `frames` of a [Document](#) or [Sprite](#) .

```
#include <ShowFrameTag.h>
```

Inheritance diagram for `jswf::flash::tags::ShowFrameTag`:



Public Member Functions

- **ShowFrameTag** (tag_type_t t, std::string &p)
- void **applyToSprite** ([Sprite](#) &sprite)

Additional Inherited Members

8.99.1 Detailed Description

Finalizes the current temporary frame and adds it to the `frames` of a [Document](#) or [Sprite](#) .

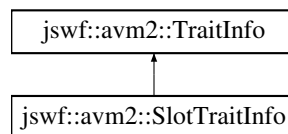
Todo Also some kind of Frame-modification super-class, but requires more parameters.

The documentation for this class was generated from the following file:

- `jswf/flash/tags/ShowFrameTag.h`

8.100 jswf::avm2::SlotTraitInfo Struct Reference

Inheritance diagram for `jswf::avm2::SlotTraitInfo`:



Public Member Functions

- **SlotTraitInfo** (u30_t slotId, const MultinamePtr &name, const MultinamePtr &type, u30_t vindex, ConstantKind::Enum vkind)

Public Attributes

- u30_t **slotId**
- MultinamePtr **typeName**
- u30_t **vindex**
- ConstantKind::Enum **vkind**

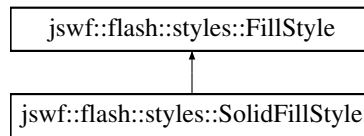
Additional Inherited Members

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

- `jswf/avm2/TraitInfo.h`

8.101 jswf::flash::styles::SolidFillStyle Class Reference

Inheritance diagram for `jswf::flash::styles::SolidFillStyle`:



Public Attributes

- [RGBA](#) **color**

The documentation for this class was generated from the following file:

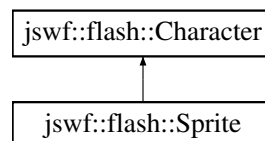
- jswf/flash/styles/FillStyle.h

8.102 jswf::flash::Sprite Class Reference

Represents a `SPRITE` character.

```
#include <Sprite.h>
```

Inheritance diagram for jswf::flash::Sprite:



Public Attributes

- [Frame](#) **temporaryFrame**
- `std::vector< std::shared_ptr< tags::Tag > > tags`
- `std::vector< Frame > frames`
- `uint16_t frameCount`
- `uint16_t currentFrame = 0`
- `bool isPlaying = true`

8.102.1 Detailed Description

Represents a `SPRITE` character.

See also

`ITagForSprite`

The documentation for this class was generated from the following file:

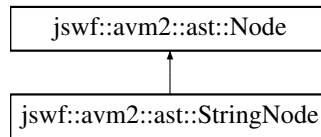
- jswf/flash/Sprite.h

8.103 jsfw::avm2::ast::StringNode Class Reference

Describes a node that carries a string literal.

```
#include <Node.h>
```

Inheritance diagram for jsfw::avm2::ast::StringNode:



Public Member Functions

- **StringNode** (const std::string &str)
- virtual std::string **toString** ()

Public Attributes

- std::string **value**

8.103.1 Detailed Description

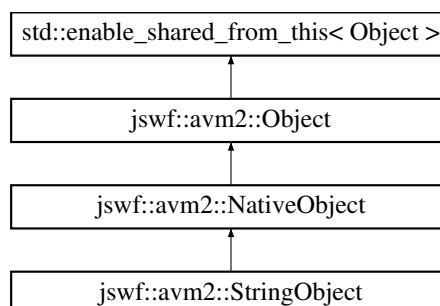
Describes a node that carries a string literal.

The documentation for this class was generated from the following file:

- jsfw/avm2/ast/Node.h

8.104 jsfw::avm2::StringObject Class Reference

Inheritance diagram for jsfw::avm2::StringObject:



Public Member Functions

- **StringObject** (VM *vm, const std::string &value)
- bool **operator==** (const Object &rhs) const
- std::string **coerce_s** () const
- bool **coerce_b** () const

Public Attributes

- `std::string value`

Additional Inherited Members

The documentation for this class was generated from the following files:

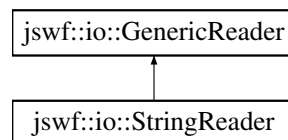
- `jswf/avm2/VM.h`
- `jswf/avm2/VM.cpp`

8.105 jswf::io::StringReader Class Reference

Implements [io::GenericReader](#) using a string as stream.

```
#include <StringReader.h>
```

Inheritance diagram for `jswf::io::StringReader`:



Public Member Functions

- [StringReader](#) (`std::string string=""`)
Constructs a [StringReader](#) with a given string.
- `uint8_t readU8 ()`
Reads a byte-aligned 8-bit unsigned integer.
- `uint16_t readU16 ()`
Reads a byte-aligned 16-bit unsigned integer (little endian)
- `uint32_t readU32 ()`
Reads a byte-aligned 32-bit unsigned integer (little endian)
- `std::string readString ()`
Reads a NUL-terminated string (C-string)
- `std::string readString (size_t)`
Reads a string of a given length.
- `void seek (int offset)`
Adds an offset to the current reading position, does not change `bitPos`.
- `void align (uint8_t bytes)`
Aligns the reader to a multiple of 'bytes', resets bit-position.
- `uint64_t readUB (uint8_t nbits)`
Reads a unsigned bit-field of length `nbits`
- `std::string readRemaining ()`
Reads all remaining bytes (bit-position rounded up)
- `bool eof ()`
Returns true if the end of stream is reached, false otherwise.
- `s32_t readS24 ()`
Reads a byte-aligned 24-bit unsigned integer (little endian)

- [u32_t readVU30 \(\)](#)
Reads a byte-aligned, variable-length encoded 30-bit unsigned integer.
- [u32_t readVU32 \(\)](#)
Reads a byte-aligned, variable-length encoded 32-bit unsigned integer.
- [s32_t readVS32 \(\)](#)
Reads a byte-aligned, variable-length encoded 32-bit signed integer.
- [d64_t readD64 \(\)](#)
Reads a IEE-754 double-precision floating point number.

Public Attributes

- `std::string` [string](#)
The string we are reading from.

8.105.1 Detailed Description

Implements [io::GenericReader](#) using a string as stream.

8.105.2 Constructor & Destructor Documentation

8.105.2.1 `jswf::io::StringReader::StringReader (std::string string = " ") [inline]`

Constructs a [StringReader](#) with a given string.

Parameters

<code>in</code>	<code><i>string</i></code>	The string to be used as data source
-----------------	----------------------------	--------------------------------------

8.105.3 Member Function Documentation

8.105.3.1 `void jswf::io::StringReader::seek (int offset) [inline]`

Adds an offset to the current reading position, does not change `bitPos`.

Parameters

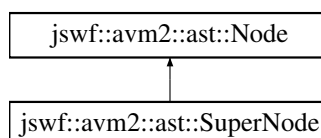
<code>in</code>	<code><i>offset</i></code>	The offset to add to <code>pos</code> , can be negative.
-----------------	----------------------------	--

The documentation for this class was generated from the following files:

- `jswf/io/StringReader.h`
- `jswf/io/StringReader.cpp`

8.106 jswf::avm2::ast::SuperNode Class Reference

Inheritance diagram for `jswf::avm2::ast::SuperNode`:



Public Member Functions

- **SuperNode** (std::vector< NodePtr > args)
- virtual std::string **toString** ()

Public Attributes

- std::vector< NodePtr > **arguments**

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.107 jswf::flash::SymbolClass Struct Reference

Describes a ([Character](#), class-name) tuple.

```
#include <SymbolClassTag.h>
```

Public Attributes

- uint16_t **characterId**
- [string](#) **className**

8.107.1 Detailed Description

Describes a ([Character](#), class-name) tuple.

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

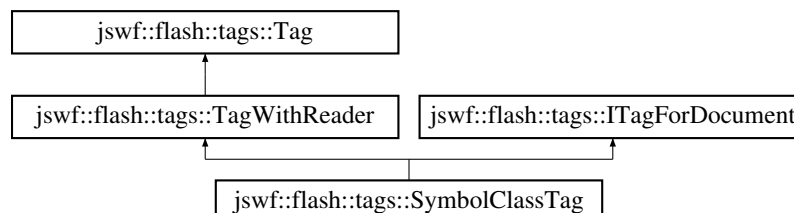
- jswf/flash/tags/SymbolClassTag.h

8.108 jswf::flash::tags::SymbolClassTag Class Reference

Assigns class-names of AVM2 classes to [Characters](#).

```
#include <SymbolClassTag.h>
```

Inheritance diagram for jswf::flash::tags::SymbolClassTag:



Public Member Functions

- **SymbolClassTag** (tag_type_t t, std::string &p)
- void **applyToDocument** ([Document](#) &document)

Public Attributes

- `std::vector< SymbolClass > symbolClasses`
A list of ([Character](#), class-name) tuples.

8.108.1 Detailed Description

Assigns class-names of AVM2 classes to [Characters](#).

The documentation for this class was generated from the following file:

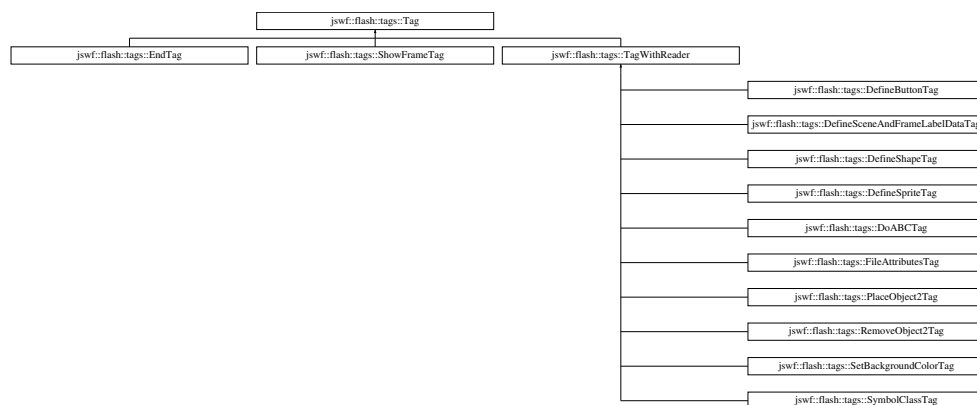
- `jswf/flash/tags/SymbolClassTag.h`

8.109 jswf::flash::tags::Tag Class Reference

Serves as super-class for all TAGs.

```
#include <Tag.h>
```

Inheritance diagram for `jswf::flash::tags::Tag`:



Public Member Functions

- [Tag](#) (tag_type_t [type](#), std::string &[payload](#))
Constructs a [Tag](#).

Public Attributes

- tag_type_t [type](#)
The tag-type as integer.
- std::string [payload](#)
The payload of this tag as string.

8.109.1 Detailed Description

Serves as super-class for all TAGs.

8.109.2 Member Data Documentation

8.109.2.1 tag_type_t jswf::flash::tags::Tag::type

The tag-type as integer.

Todo Make this an enum!

The documentation for this class was generated from the following file:

- jswf/flash/tags/Tag.h

8.110 jswf::flash::TagFactory Class Reference

Provides methods to create a polymorphic Tag by a given type identifier.

```
#include <TagFactory.h>
```

Static Public Member Functions

- static [tags::Tag](#) * [create](#) (tags::tag_type_t, std::string &)
Creates a Tag using the specified type identifier and payload.

8.110.1 Detailed Description

Provides methods to create a polymorphic Tag by a given type identifier.

8.110.2 Member Function Documentation

8.110.2.1 tags::Tag * TagFactory::create (tags::tag_type_t type, std::string & payload) [static]

Creates a Tag using the specified type identifier and payload.

Parameters

in	type	Type identifier to determine the class to be instantiated for the Tag.
in	payload	The Tag's payload.

Returns

The constructed Tag.

The documentation for this class was generated from the following files:

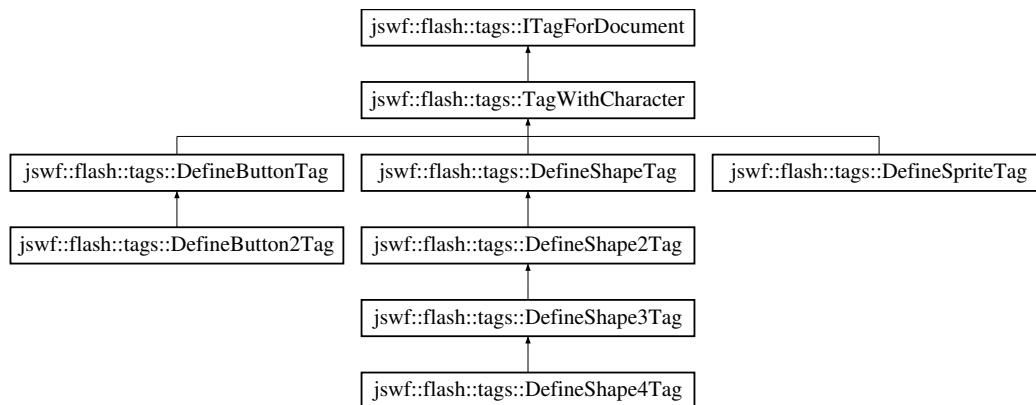
- jswf/flash/TagFactory.h
- jswf/flash/TagFactory.cpp

8.111 jswf::flash::tags::TagWithCharacter Class Reference

Super-class for TAGs that define a character for the document's DICTIONARY (eg [DefineShapeTag](#), [Define↵ButtonTag](#)).

```
#include <TagWithCharacter.h>
```

Inheritance diagram for `jswf::flash::tags::TagWithCharacter`:



Public Member Functions

- void **applyToDocument** ([Document](#) &document)

Public Attributes

- `std::shared_ptr< Character > character`

A `shared_ptr` to a polymorphic character described by this TAG

8.111.1 Detailed Description

Super-class for TAGs that define a character for the document's `DICTIONARY` (eg [DefineShapeTag](#), [DefineButtonTag](#)).

Todo It's not nice to implement a function in an interface!

The documentation for this class was generated from the following file:

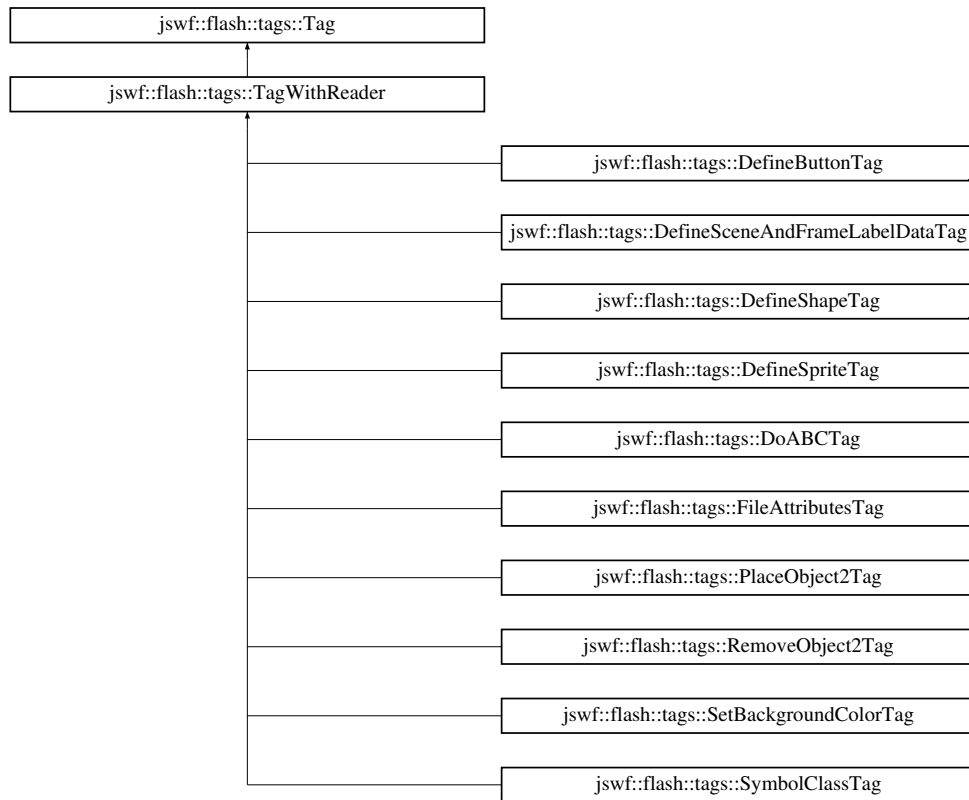
- `jswf/flash/tags/TagWithCharacter.h`

8.112 jswf::flash::tags::TagWithReader Class Reference

Serves as super-class for all TAGs that use an [io::StringReader](#) and/or a [flash::Reader](#) to parse their payload.

```
#include <TagWithReader.h>
```

Inheritance diagram for `jswf::flash::tags::TagWithReader`:



Public Member Functions

- [TagWithReader](#) (tag_type_t type, std::string &payload)

Constructs a [TagWithReader](#) by initializing the [reader](#) and [flashReader](#) .

Public Attributes

- std::shared_ptr< [io::StringReader](#) > reader
The [io::StringReader](#) that operates on [payload](#).
- [flash::Reader](#) flashReader
The [flash::Reader](#) that operates on [reader](#).

8.112.1 Detailed Description

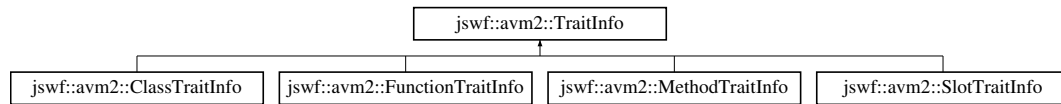
Serves as super-class for all TAGs that use an [io::StringReader](#) and/or a [flash::Reader](#) to parse their payload.

The documentation for this class was generated from the following file:

- jswf/flash/tags/TagWithReader.h

8.113 jswf::avm2::TraitInfo Struct Reference

Inheritance diagram for jswf::avm2::TraitInfo:



Public Types

- enum [Kind](#) : u8_t {
[SlotKind](#) = 0, [MethodKind](#) = 1, [GetterKind](#) = 2, [SetterKind](#) = 3,
[ClassKind](#) = 4, [FunctionKind](#) = 5, [ConstKind](#) = 6 }
Describes kinds of [TraitInfo](#) .
- enum [Attributes](#) : u8_t { [FinalAttribute](#) = 0x1, [OverrideAttribute](#) = 0x2, [MetadataAttribute](#) = 0x4 }
Describes attributes of [TraitInfo](#) .

Public Attributes

- MultinamePtr [name](#)
The name of this trait.
- [Kind](#) [kind](#)
The kind of this trait.
- [Attributes](#) [attributes](#)
Attributes (flags) of this trait.
- std::vector< [u30_t](#) > [metadata](#)
[Metadata](#) for this trait.

8.113.1 Member Enumeration Documentation

8.113.1.1 enum jswf::avm2::TraitInfo::Kind : u8_t

Describes kinds of [TraitInfo](#) .

Enumerator

- [SlotKind](#)** Member definition, use [SlotTraitInfo](#).
- [MethodKind](#)** Method definition, use [MethodTraitInfo](#).
- [GetterKind](#)** Getter definition, use [MethodTraitInfo](#).
- [SetterKind](#)** Setter definition, use [MethodTraitInfo](#).
- [ClassKind](#)** [Class](#) definition, use [ClassTraitInfo](#).
- [FunctionKind](#)** Function definition, use [FunctionTraitInfo](#).
- [ConstKind](#)** Constant member definition, use [SlotTraitInfo](#).

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

- jswf/avm2/TraitInfo.h

8.114 jswf::avm2::TraitMatch Struct Reference

Public Attributes

- bool **isStatic**

- TraitMap * **dataStore**
- [TraitInfo](#) * **trait**

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

- jswf/avm2/VM.h

8.115 jswf::avm2::VM Class Reference

Public Member Functions

- void **loadABCFile** (std::shared_ptr< [ABCFile](#) > file)
- [Class](#) * **getClassByName** (std::string name) const
- ObjectPtr **instantiateClass** (std::string className)
- void **setupSlotDefaults** (ObjectPtr &obj, [Class](#) *klass)
- ObjectPtr **instantiateClass** ([Class](#) *klass)
- ObjectPtr **instantiateDisplayClass** ([Class](#) *klass, [flash::DisplayListEntry](#) *entry)
- ObjectPtr **runMethod** ([MethodInfo](#) *method, std::vector< ObjectPtr > arguments)

Public Attributes

- std::map< std::string, [Class](#) * > **classes**
- std::vector< std::shared_ptr< [ABCFile](#) > > **files**
- ObjectPtr **globalObject**
- ObjectPtr **undefinedObject**
- ObjectPtr **nullObject**

The documentation for this class was generated from the following file:

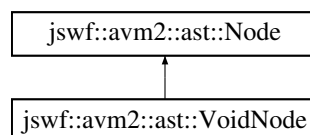
- jswf/avm2/VM.h

8.116 jswf::avm2::ast::VoidNode Class Reference

Describes.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::VoidNode:



Public Member Functions

- virtual std::string **toString** ()

Additional Inherited Members

8.116.1 Detailed Description

Describes.

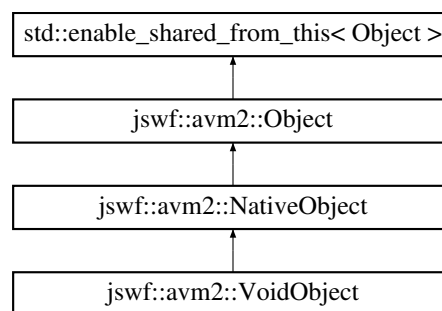
Todo What is this here for?!

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

8.117 jswf::avm2::VoidObject Class Reference

Inheritance diagram for jswf::avm2::VoidObject:



Public Types

- enum **Kind** { **NullValue** = 0, **UndefinedValue** }

Public Member Functions

- **VoidObject** (**VM** *vm, const Kind &value)
- bool **operator==** (const **Object** &rhs)
- bool **coerce_b** () const
- std::string **coerce_s** () const
- double **coerce_d** () const

Public Attributes

- Kind **value**

The documentation for this class was generated from the following files:

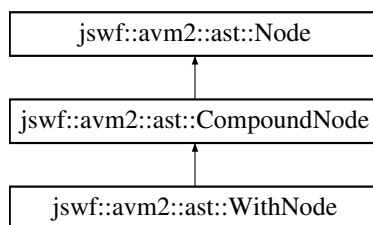
- jswf/avm2/VM.h
- jswf/avm2/VM.cpp

8.118 jswf::avm2::ast::WithNode Class Reference

Describes a `with` statement.

```
#include <Node.h>
```

Inheritance diagram for jswf::avm2::ast::WithNode:



Public Member Functions

- **WithNode** (NodePtr value)
- virtual std::string **toString** ()
- virtual std::string **toIntendedString** (int p)

Public Attributes

- NodePtr **value**

8.118.1 Detailed Description

Describes a `with` statement.

The documentation for this class was generated from the following file:

- jswf/avm2/ast/Node.h

Chapter 9

File Documentation

9.1 jswf/flash/tags/Tags.h File Reference

Includes all tag headers.

```
#include "EndTag.h"
#include "ShowFrameTag.h"
#include "DefineShapeTag.h"
#include "FileAttributesTag.h"
#include "DefineButtonTag.h"
#include "DefineButton2Tag.h"
#include "DefineShape2Tag.h"
#include "DefineShape3Tag.h"
#include "DefineShape4Tag.h"
#include "DefineSpriteTag.h"
#include "RemoveObject2Tag.h"
#include "PlaceObject2Tag.h"
#include "SetBackgroundColorTag.h"
#include "DoABCTag.h"
#include "SymbolClassTag.h"
#include "DefineSceneAndFrameLabelDataTag.h"
```

9.1.1 Detailed Description

Includes all tag headers.

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