

**NBGM RePlayer ActionScript**

**Reference**

**NBGM Group**

**Version1.00**

**PROPRIETARY & CONFIDENTIAL**

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| **Revision History** |

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| **Pending Document Clarifications** |

* Add a format compatibility section to identify how the NBM format supports extensibility while maintaining backward compatibility.

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# Executive Summary

The ActionScript(AS) format for NBGM RePlayer display map and make animation. This reference manual describes the syntax and “core semantics” of the language, it also describes the standard functions that is distributed with ActionScript.

# Technical Requirements

Statement of the technical requirements the format must support.

## Requirements

| **Req. ID** | **PRD Ref** | **Requirement** | **System Analysis** |
| --- | --- | --- | --- |
| NBAS-001 |  | AS should use the 7-bit ASCII character set for program text. |  |
| NBAS -002 |  | AS should have efficient high-level adata structures and a simple but effective approach to object-oriented programming |  |
| NBAS -003 |  | AS should be an ideal language for scripting and rapid application development |  |
| NBAS -004 |  | AS should be easily to port to different platform |  |
| NBAS -005 |  | AS should be easily to extend with new functions and data types implemented in C/C++ |  |
| NBAS -006 |  | AS should provide a set of built-in function as a library for basic actions. |  |
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## Future Goals

TODO: add future goals

# The ActionScript Language Reference

NBGM RePlayer use Python as its action script, for more detail Python programming reference, please see: <http://docs.python.org/2.6/reference/index.html#reference-index>

## Line structure

The AS program is divided into a number of logical lines.

## Indentation

Leading whitespace (spaces and tabs) at the beginning of a logical line is used to compute the indentation level of the line, which in turn is used to determine the grouping of statements.

## Keywords

The following identifiers are used as reserved words, or keywords of the language, and cannot be used as ordinary identifiers. They must be spelled exactly as written here:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **and** | **del** | **from** | **not** | **while** |
| **as** | **elif** | **global** | **or** | **with** |
| **assert** | **else** | **if** | **pass** | **yield** |
| **break** | **except** | **import** | **print** |  |
| **class** | **exec** | **in** | **raise** |  |
| **continue** | **finally** | **is** | **return** |  |
| **def** | **for** | **lambda** | **try** |  |

## Operators

The following tokens are operators:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **+** | **-** | **\*** | **\*\*** | **/** |
| **//** | **%** | **<<** | **>>** | **&** |
| **|** | **^** | **~** | **<** | **>** |

## Delimiters

The following tokens serve as delimiters in the grammar:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **(** | **)** | **[** | **]** | **{** |
| **}** | **@** | **,** | **:** | **.** |
| **‘** | **=** | **;** | **+=** | **-=** |
| **\*=** | **/=** | **//=** | **%=** | **&=** |
| **|=^=** | **>>=** | **<<=** | **\*\*=** |  |

The following printing ASCII characters have special meaning as part of other tokens or are otherwise significant to the lexical analyzer:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **‘** | **“** | **#** | **\** | **{** |

# ActionScript Standard Library

Besides Python standard library(<http://docs.python.org/2.6/library/>), ActionScript also provide a library to control NBGM RePlayer.

The library provides a set of data structure that would be used to make animation, change map content, etc. It also contains built-in functions that can be used by all AS code.

All data structures and functions name in the standard library have the same prefix nbas: nbas\_load\_tile, nbas\_unload\_tile, nbas\_move\_to, etc.

## Tile Operation

The models described in this chapter deal with tile and common material file.

|  |
| --- |
| *nbas\_load\_common\_material(material\_name, file\_path)* |
| Load common material file which will be used to render map. Material file MUST be loaded before load tile file, and use nbas\_set\_current\_common\_material () to switch common material between loaded materials. |

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| *nbas\_set\_current\_common\_material(material\_name)* |
| Set current common material used by rendering nbm map. Eg, day & night model may has different common material file. material\_name shoud be loaded by *nbas\_load\_common\_material* before use |

|  |
| --- |
| *nbas\_load\_tile(tile\_name, file\_path)* |
| Load a NBM tile to render |

|  |
| --- |
| *nbas\_unload\_tile(tile\_name)* |
| Load a NBM tile to render |

|  |
| --- |
| *nbas\_load\_tile\_folder(folder\_path)* |
| Load all NBM tiles under the specified folder to render |

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| --- |
| *nbas\_unload\_all\_tiles()* |
| Unload all NBM tiles that have beed loaded |

## Camera Control And Animation

The models described in this chapter deal with camera and map view control. For example, there are modules for rotating, zooming the map, animating the camera between two given location.

|  |
| --- |
| *nbas\_camera\_set\_viewport(latitude, longitude)* |
| Set camera viewport. Generally, the viewport is same as map center. |
| ***nbas\_camera\_set\_attitude(distance, tilt\_angle, rotate\_angle)*** |
| Set all camera attribute, distance from camera to viewport in meters, tile\_angle in degree, rotate\_angle in degree |

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| --- |
| *nbas\_camera\_zoom(scale, duration, repeat)* |
| Zoom camera distance, new\_distance = distance\*scale, if repeat == -1, means animation is an endless animation |

|  |
| --- |
| *nbas\_camera\_tilt(delta\_angle, duration, repeat)* |
| Tile camera, new\_tilt\_angle = tilt\_angle + delta\_angle, if repeat == -1, means animation is an endless animation |

|  |
| --- |
| *nbas\_camera\_rotate(delta\_angle, duration, repeat)* |
| Rotate camera, new\_roate\_angle = rotate\_angle + delta\_angle, if repeat == -1, means animation is an endless animation |

|  |
| --- |
| *nbas\_camera\_revolute(delta\_angle, duration, repeat)* |
| Revolute camera, if repeat == -1, means animation is an endless animation |

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| --- |
| *nbas\_camera\_make\_linear\_animation (postion\_array, duration, repeat)* |
| Make camera slid on the track provided by position\_array, if repeat == -1, means animation is an endless animation. During the animation, camera distance & tilt angle do not change, but viewport and rotate will change based on current position |

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| --- |
| *nbas\_camera\_set\_viewport\_to\_tile\_center(tileX, tileY, tileZ)* |
| Revolute camera, if repeat == -1, means animation is an endless animation |

## POI And PIN

TODO: add POI interfaces

## Avatar

TODO: add avatar interfaces

## Utilities

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| --- |
| *nbas\_tile\_to\_lat\_long(tileX, tileY, tileZ, latitude, longitude)* |
| Convert tile index to latitude/longitude |

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| *nbas\_lat\_long\_to\_tile(latitude, longitude, tileZ, tileX, tileY)* |
| Convert tile index to latitude/longitude, based on tileZ |

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| *nbas\_lat\_long\_to\_mercator (latitude, longitude, mercatorX, mercatorY)* |
| Convert latitude/longitude to a Mercator point |

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| --- |
| *nbas\_mercator\_to\_lat\_long(mercatorX, mercatorY, latitude, longitude)* |
| Convert latitude/longitude to a Mercator point |

|  |
| --- |
| *nbas\_tile\_to\_mercator(tileX, tileY, tileZ, mercatorX, mercatorY)* |
| Convert tile center to a Mercator point |

|  |
| --- |
| *nbas\_mercator\_to\_tile(mercatorX, mercatorY, tileZ, tileX, tileY)* |
| Convert a Mercator point to tile center, based on tileZ |