



NES Cafe Nintendo Emulator for Java

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To learn how to setup NES Cafe quickly on your Web Server or on your PC, please turn to the first chapter of this PDF where there are Quick Start guides for all three versions of NES Cafe!

Welcome to NES Cafe

Welcome to the NES Cafe Nintendo emulator for Java. If you have a question or wish to give me any feedback on the NES Cafe Nintendo emulator then please do not hesitate to contact me via email (my address is above) as your comments and suggestions are always welcome. More information on NES Cafe can also be found on the NES Cafe website (address also shown above).

Introduction

Welcome to the NES Cafe Nintendo Emulator for Java. In a nutshell, the NES Cafe emulator allows you to play your old 8-bit Nintendo Entertainment System (NES) games on your computer or on your personal website by emulating the original hardware of the NES and tricking the games into thinking that they are running on the real machine. To play one of your old NES games all you need is the NES Cafe emulator, a copy of the game in NES format and a Java Virtual Machine.

NES Cafe was the first Java-based emulator for the Nintendo with sound support and the only one to offer such a high level of compatibility with the original hardware by correctly emulating the microprocessors and additional controllers. I started work on NES Cafe in May 2000 for my final year Computer Science project. Since the first release back in 2001, I have been continually working on and improving NES Cafe during my spare time (not that I get a lot of this). NES Cafe is now a stable and powerful emulator that is being run on many websites and can also be run as a standalone application from your desktop. It runs the vast majority of commercial NES games.

Thanks for downloading NES Cafe. I hope that you enjoy it!

David de Niese



TABLE OF CONTENTS

1	NESCAFE	4
1.1	INSTALLING NESCAFE HOSTED VERSION	5
1.2	INSTALLING NESCAFE STANDARD VERSION	6
1.3	INSTALLING NESCAFE APPLET VERSION	7
2	USING NESCAFE	9
2.1	OVERVIEW	9
2.2	CONTROLS FOR NESCAFE	11
3	SPECIAL FEATURES AND ADD-ONS	14
3.1	NESCAFE GAME SUBTITLES	14
3.2	TIME SHIFT BUFFER	14
3.3	RECORDING AND PLAYING BACK YOUR GAMES	15
3.4	INTERNATIONAL PATCHING SYSTEM (IPS) FILES	16
4	CONFIGURING NESCAFE APPLET VERSION	18
4.1	INSTALLING THE NESCAFE APPLET ON YOUR WEBSITE	18
4.2	CONFIGURING THE NESCAFE APPLET ON YOUR WEBSITE	18
4.3	THE NESCAFE SETTINGS FILE	21
4.4	NESCAFE APPLET SCRIPTS	23
4.5	TIME TRIAL MODE	26
5	PROJECT STATUS AND THANKS	28
5.1	HARDWARE EMULATED	28
5.2	CREDITS AND THANKS	29
5.3	RECENT REVISION HISTORY	30



NES Cafe

Section 1: Installing NES Cafe

This section of the document provides an overview of NES Cafe and how to install it



1 NESCAFE

NES Cafe Versions for Download

NES Cafe is available in the following three main flavours:

- 1 **Hosted**
This is the fastest and easiest way of getting NES Cafe running on your website. Simply place one line of code into a webpage and provide the link to the game you wish to play. We host the Applet for you, as well as host any screenshots or saved games that your users record whilst playing.
- 2 **Standard**
This is the standard version of NES Cafe. This version can be downloaded to your local computer and will allow you to play NES games from your desktop. If you are not always connected to the Internet then this is the option to go with.
- 3 **Applet**
This version is only for trusted partners of NES Cafe - the sites that have supported the development of NES Cafe either through testing or donations. If you are one of these sites then this version will work for you. It is your own NES Cafe Applet, which can be placed on your website for your visits to use.

NES Cafe Online Services

- 1 **Facebook**
For those of you with a Facebook account you can play NES Cafe online by adding the NES Online Facebook application. This application allows you to play hundreds of Nintendo games, as well as share your progress with your friends. To add the application click on this link:



<http://apps.facebook.com/nesonline>



1.1 INSTALLING NESCAFE HOSTED VERSION

This checklist should be completed to install Hosted NES Cafe on your website:

- 1 Add the following line of code to a webpage on your web site. This runs the NES Cafe applet from the official NES Cafe website. You can configure the width and height of NES Cafe by changing the width and height parameters:

```
<IFRAME width=400 height=400  
src=http://www.nescafeplay.com/nescafe/?gameurl=http://www.nescafeplay.com/DuckTales.zip>  
</IFRAME>
```

Test the above code and you should see Duck Tales start. You should now change the URL for the game (in blue) to a game that you are hosting on your own website. Once changed, open up the webpage and check it works.

- 2 If you would like the users on your website who are playing NES Cafe to be able to save their progress in the game, you can provide a user ID field too. This field must uniquely identify the user on your site, it can be a name or a number provided that it is not assigned to any other people on your website (if you do assign the same number to more than one person then they will be able to load and overwrite each others games). Specify the user as follows:

```
<IFRAME width=400 height=400  
src=http://www.nescafeplay.com/nescafe/?gameurl=http://www.mydomain.com/game.nes&userid=Dave>  
</IFRAME>
```

- 3 The users of your website need to have Java installed to run NES Cafe via the Web Browser. Java SE can be downloaded from <http://java.com/download>

- 4 NES Cafe should now be working on your website for your guests.



1.2 INSTALLING NESCAFE STANDARD VERSION

This checklist should be completed to install Standard NES Cafe on your computer:

- ① Download the Standard version of NES Cafe from www.nescafeplay.com
- ② Copy the files from the distribution file to a `/nescafe/` directory on your PC.
- ③ Download the Java Virtual Machine from <http://java.com/download/> and install it onto your computer. A Java VM is required in order to run NES Cafe.

- ④ Go to the directory in which you installed NES Cafe and then:

If using the Windows operating system:

Double-click the `nescafe.bat` file to run NES Cafe

If using the Mac OS, Unix or Linux operating systems:

Run the command `java -jar nescafe.jar`

- ⑤ NES Cafe should start and you should see the NES Cafe logo.



1.3 INSTALLING NESCAFE APPLET VERSION

The Applet version is for trusted Partners of NES Cafe - the sites that have supported the development of NES Cafe either through testing or donations. If you are one of these sites then this version will be enabled for use on your site. The Applet version is your very own NES Cafe Applet, which can be placed on your website for your visits to use.

This checklist should be completed to install the NES Cafe Applet on your Website:

- 1 Download the Applet version of NES Cafe from www.nescafeplay.com
- 2 Connect via FTP to your website so that you are able to upload files.
- 3 Create a new [/nescafe/](#) directory from the root of your Web Site.
- 4 Copy the following files from the distribution file to the [/nescafe/](#) directory:
 - [index.html](#)
 - [nescafe.jar](#)
 - [nescafe-settings.txt](#)
- 5 Create a subdirectory (folder) for your ROM files at [/nescafe/roms/](#). Ensure that you are legally allowed to host whichever ROM game files you host from your site. If you do not have ROM images then you can Google 'NES ROMS', although you still need to check that you are entitled to host such files.
- 6 Open up the nescafe.html file and edit the ROMFILE Tag within the Applet Tag to point at the ROM file that you want NES Cafe to load upon start-up. If you have uploaded a zip-file called mario.zip (which contains mario.nes) to the [/nescafe/roms](#) directory on your Web Server then you should change the ROMFILE tag to point at roms/mario.zip using the following syntax:


```
<param name=ROMFILE value="roms/mario.zip">
```
- 7 *Optional:* If you are using a Web Server that supports PHP then you can also use the NES Cafe PHP scripts. These scripts allow your visitors to use the save features of the Applet version. Information on configuring these scripts can be found in section 4.4. PHP can be downloaded from <http://www.php.net>
- 8 Use an Internet Browser (such as Fire Fox or Microsoft Internet Explorer) to browse to your website. If your domain is called localhost then you should browse to <http://localhost/nescafe/> to start NES Cafe. You will also have to ensure your visitors have installed Java in order to run NES Cafe. The Java Plugin for Web Browsers can be downloaded from <http://java.com/download>
- 9 NES Cafe should start and you should see the NES Cafe logo.



NES Cafe

Section 2: Using NES Cafe

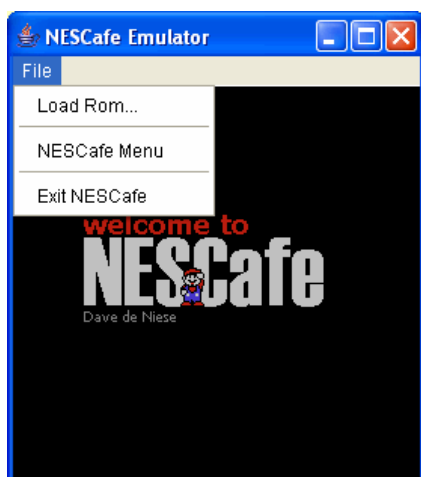
This section of the document describes how to use NES Cafe



2 USING NESCAFE

2.1 OVERVIEW

Whether using the Hosted, Standard or the Applet version of NES Cafe, the interface is almost identical. The only difference is that the Standard version has a File Menu available. In all versions the majority of the functionality is available via the NES Cafe Menu, which can be accessed by pressing the ESC key or by right-click on the screen.



Main NES Cafe Screen

When you run NES Cafe it will start up and load the default NES Cafe game (unless you have instructed otherwise). This contains a waving Mario. Use this to test the controls by pressing any of the control keys (by default these are Enter, Space, Z or X) to see the screen flash.

If you are using the Standard version, you can load a new game from the File Menu. Click on the Load Rom menu item on the File Menu and a File Open dialogue box will be displayed, allowing you to select the ROM (Nintendo Game) that you want to load. The game will then start running in the main window.



The NES Cafe Main Menu (press ESC to access)

The NES Cafe Menu provides most of the game functionality. This can be accessed by either pressing the ESC key, by selecting the NES Cafe Menu from the File menu in the Standard version or by right-clicking the main display screen.

The Settings Menu allows you to configure the controls, enable or disable the Light Gun, enable or disable the Sound and configure the graphics.

The Emulation Menu allows you to save or load the State of the Emulator, and pause or reset the Nintendo game you are playing. On games where Save RAM is enabled there is also the additional option of Wiping the Save RAM.

The Extras Menu allows you to enter Game Genie codes, record movies and grab screenshots. If you are playing a game that supports NES Cafe Subtitles (see later) then the option to toggle these is also found here.



NES Cafe Settings Menu Screen

The Settings Menu

You can configure your own controls for the NES Cafe Joy Pad from the Settings menu. There are also options to configure the Time Shift Buffer settings from this menu, which saves the state of the emulator every couple of seconds so if you make a mistake then you can press the BACKSPACE key to jump back in time and correct it – almost like your very own Warp Zone!

Finally, you can configure the format of the Movie Files that are produced when you press F8 and can choose whether you wish to save only the key-presses (resulting in smaller movies), or whether you wish to record a full animated GIF.

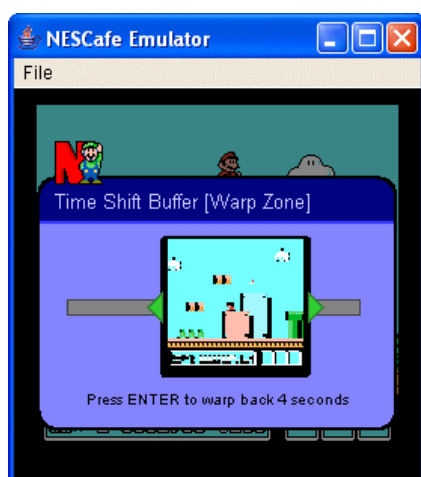


NES Cafe Load State Menu Screen (press F5)

The Emulation Menu

You can use the Emulation menu to save the state of NES Cafe and then load it back at a later time. For example, if you are just about to battle Bowser then you can save your State (press F6) before the battle. Then, whenever you need to, click on Load State (press F5) and you can go straight back to where you were!

The Save State Screen of the Emulation menu is shown on the left. You can Save a State into one of the available slots for each game. When you go to Load a previously saved state you can cycle through the available slots by pressing the UP and DOWN arrows on your keyboard.



NES Cafe Time Shift Buffer Screen (press Back-Space)

The Extras Menu

The Extras Menu provides access to the Time Shift Buffer and a host of other extra features – such as the ability to input Game Genie Codes, record movies and save screenshots.

The Time Shift Buffer (Warp Zone) allows you to jump back in time, much like when using the Time Shift Buffer on a modern video machine. The game state is automatically recorded every couple of seconds (defined from the Settings Menu); therefore if your game isn't going too well you can use this option to jump back.



2.2 CONTROLS FOR NESCAFE

The following tables show the controls available when NES games are running NES Cafe:

Controls for Joy Pad 1 (default)

Nintendo Function	NES Cafe Hosted and Standard	NES Cafe Applet
Start button	Enter	Enter
Select button	Spacebar	Spacebar
A button	X	X
B button	Z	Z
Up button	Up arrow	Up arrow
Down button	Down arrow	Down arrow
Left button	Left arrow	Left arrow
Right button	Right arrow	Right arrow

[Note that the above controls can be changed](#)

Controls for Joy Pad 2 (requires Light Gun to be Enabled)

Nintendo Function	NES Cafe Hosted and Standard	NES Cafe Applet
Aim Light Gun (Zapper)	Move mouse	Move mouse
Fire Light Gun (Zapper)	Click Left Mouse Button	Click Left Mouse Button

Emulation Controls

Nintendo Function	NES Cafe Hosted and Standard	NES Cafe Applet
Pause Emulation	F2	F2
Reset the Game	F9	F9
Show Time Shift Buffer	BACKSPACE	BACKSPACE
Commit State of Emulator	F6	F6 (requires SAVEDATAURL tag)
Rollback to Saved State	F5	F5 (requires LOADDATAURL tag)
Start / Stop Recording	F8	F8 (requires SAVEDATAURL tag)
Time Trial Submit	[not available]	F12 (must be in Time Trial Mode)



Adjustment Controls

Nintendo Function	NES Cafe Hosted and Standard	NES Cafe Applet
Display Main Menu	ESC or Right-Click	ESC or Right-Click
Sound Toggle	F3	F3 (must be enabled in tag)
Toggle Game Subtitles*	#	#
Save Screenshot	F7	F7
Toggle Player 1/2	/	/
Enter Game Genie Codes	F4	F4

* NES Cafe Game subtitles are an information layer that can be displayed over the game. They are currently available when NES Cafe runs Mike Tyson's or Mr. Dream's Punch-out to tell the player the strength of their punches. More details on Subtitles can be found in the following section.



NES Cafe

Section 3: NES Cafe Special Features

This section explains the additional features available in NES Cafe (all versions)



3 SPECIAL FEATURES AND ADD-ONS

This section of the document outlines additional add-ons and special features that NES Cafe provides. If you simply want to run a game in NES Cafe or want to host NES Cafe on your website for your visitors then you do not need to read this section. However, if you want to learn about some of the additional capabilities NES Cafe offers then read on.

3.1 NES CAFE GAME SUBTITLES

This feature is unique to NES Cafe. Subtitles provide the player with additional information about what is happening in a game and overlays this on the screen during the game-play. For example, in Mike Tyson's Punch-out, when Subtitles are displayed you can see exactly how hard a punch was, or exactly how much energy you have left in your energy bar. You can display Subtitles for supported games by pressing the # key.

The following games currently support Subtitles (more to come):

Game Name	Features
Punch-Out (Mr Dream and Mike Tyson's)	Displays the exact energy levels for the health bars Displays the exact strength of all the opponents punches Displays the exact strength of all Little Macs punches

3.2 TIME SHIFT BUFFER

The Time Shift Buffer (TSB) can be accessed by pressing BACKSPACE and allows the user to jump back in-time when playing a NES game. Every couple of seconds NES Cafe will automatically record the state of the emulator (configured from the Settings Menu) and maintain a rolling period of states that you can jump back to.



3.3 RECORDING AND PLAYING BACK YOUR GAMES



Configuring the Recording Format for Movies



Recording a Game



Playing a Movie Back

Recording Movies

NES Cafe supports the ability to record your Games using two different recording formats.

You can choose to save just the initial State of the emulator and then all subsequent key-presses (known as Recording Key-presses). This option is ideal for creating small movie files, provided the person viewing the movie has a copy of NES Cafe and the same NES file.

Alternatively you can save your play to an Animated GIF, which are considerably larger (thus restricted in the Applet version to 2MB), but could be viewed in any Web Browser.

Load your Game and then to start recording it press F8 on your keyboard (or select Record Movie from the Extras menu). If you are using the Applet version, Game Recording requires a SAVE DATA URL Tag to be defined in your Applet Tag. As the game is being recorded, a flashing red record message is displayed in the top left-hand corner of the screen. When you have finished recording your game, press either the F8 or ESC key on your keyboard.

If you elected to Record Keystrokes, you are then able to save your movie into an available Save Slot. If you elected to Record an Animated GIF, your movie is automatically saved back to your server as a GIF file.

Playing Back Movies

To play back Keystroke movies (unfortunately you cannot play back Animated GIFs inside NES Cafe) press the F5 key to bring up the Load State menu. Then go to the Save slot that the movie was saved into.

You will see a screen image of the beginning of the movie. The words Movie Embedded will also appear over the screen image to let you know that the State file is a movie. Press ENTER to start the movie and press ESC at any time during playback to stop it.



3.4 INTERNATIONAL PATCHING SYSTEM (IPS) FILES

NES Cafe supports International Patching System Files (IPS). IPS files are used to patch (edit) the contents of the underlying Nintendo ROM files, allowing hackers to change the graphics or to change entire levels within games. It is also worth noting that NES Cafe does not permanently edit the underlying ROM file unlike other IPS tools. This means that you do not risk losing an original ROM by patching it using this IPS feature.

To allow the IPS file to be loaded in the Standard version you must ensure that the file is placed into a subdirectory called IPS, directly below where you placed NES Cafe and that the file is called the same as the ROM image you are running, but with an .ips extension.

An example directory configuration is below:

```
/nescafe.jar  
/roms/mario1.zip    [The game that you are running]  
/ips/mario1.ips     [The IPS patch file that you want to load with mario1.zip]
```

To allow the IPS file to be loaded in the Applet Version you must ensure it is specified by the IPSURL tag inside the HTML code (see the Applet Configuration section). The IPSURL tag must point directly at the file; you should not point this URL at a PHP script.

An example Applet Tag is below:

```
<applet code=NESCafeApplet  
        archive=nescafe.jar  
        codebase=.  
        Width=260  
        height=244  
        name=nescafe>  
  
        <param name=ROMFILE value=roms/megaman2.zip>  
        <param name=IPSURL  value=ips/megaman2.ips>  
  
</applet>
```

Users should know that saving and loading State information is prevented when using IPS patched games in order to prevent corruption when a state saved with a particular IPS patch is later loaded into the same game, but without the IPS patch applied.



NES Cafe

Section 4: NES Cafe Applet Version

This section explains the additional features only available in NES Cafe Applet Version



4 CONFIGURING NESCAFE APPLET VERSION

The Applet version is for trusted Partners of NES Cafe - the sites that have supported the development of NES Cafe either through testing or donations. If you are one of these sites then this version will be enabled for use on your site. The Applet version is your very own NES Cafe Applet, which can be placed on your website for your visits to use.

4.1 INSTALLING THE NESCAFE APPLET ON YOUR WEBSITE

1. Ensure a Web Server is installed correctly (and PHP is installed if required)
2. Copy the following files to a directory that is hosted on your Web Server:
 - index.html (this is the main HTML file that housing the NES Cafe Applet)
 - nescafe.jar (this is the NES Cafe emulator's executable code)
 - nescafe-settings.txt (this is the settings file that holds the configuration for NES Cafe)
3. Optionally, if you want the extra functionality NES Cafe provides for allowing your users to save and load states and images then copy the following PHP files and enable them in the Applet Tag (see details below, and in section 4.4):
 - nescafeload.php (used to load NES Cafe data files, if enabled in Applet Tag)
 - nescafesave.php (used to save NES Cafe data files, if enabled in Applet Tag)
 - nescafe-showthumb.php (used by view Thumbnail images from State/RAM files)
4. Finally, go to the HTTP location that you uploaded NES Cafe to and run it. If you installed the application successfully then you should see the NES Cafe logo. It is worth remembering that you will need your clients to install a Java VM as well.

If you intend hosting NES Cafe on your own website then you may change the index.html file to your suiting. However, you must place a link back to the NES Cafe website.

4.2 CONFIGURING THE NESCAFE APPLET ON YOUR WEBSITE

The core settings for the NES Cafe Applet are contained within the index.html file. The code below shows the structure of the Applet tag and the possible supported settings:

```
<applet code=NES CafeApplet archive="nescafe.jar" width=256 height=240>

    <param name=ROMFILE          value="roms/nintendogame.nes">
    <param name=LIGHTGUN          value="false">
    <param name=SOUND              value="true">
    <param name=SETTINGSFILE      value="mysettings.settings">
    <param name=GAMEGENIE         value="ITYEOXUK, APZLGI">
    <param name=LOADSTATEONSTARTUP value="savestates/mystate.nss">
    <param name=IPSURL            value="ips/patchfile.ips">
    <param name=LOADDATAURL       value="scripts/nescafeload.php">
    <param name=SAVEDATAURL       value="scripts/nescafesave.php">

</applet>
```



In general, the settings that you can configure in the Applet Tag for NES Cafe are specific to the current game that you are playing. They include whether Game Genie codes are enabled for that game, the name of the ROM file to load and whether to use the Light Gun. There are additional settings that can be configured in the nescafe-settings.txt file, which are more general in nature (how the controls are setup for example).

APPLET TAGS:

Tag	Meaning	Optional	Default
WIDTH	The width in pixels of the displayed Applet. This setting should be at least 256 to ensure that the entire Nintendo screen is visible. It should be noted that when both the width and height are increased beyond 300 pixels then the NES Cafe screen will be magnified and centred.	No	256
HEIGHT	The height in pixels of the displayed Applet. This setting should be at least 240 to ensure that the entire Nintendo screen is visible. It should be noted that when both the width and height are increased beyond 300 pixels then the NES Cafe screen will be magnified and centred.	No	240
ROMFILE	The location of the Nintendo ROM files to play. When the NES Cafe Applet starts up it will attempt to load and run the ROM file that is specified by this tag. If no Nintendo ROM file is provided then the default nescafe.nes file will be loaded instead (from inside the JAR file).	Yes	nescafe.nes
LIGHTGUN	Whether or not the Light Gun is enabled. This tag should be set to True for all the games that require Light Gun (Zapper) support (for example, games such as Duck Hunt).	Yes	False
SOUND	Whether or not Sound should be emulated. This tag should be set to True for all games that you want NES Cafe to emulate the sound for.	Yes	False
SETTINGS FILE	Specifies an alternative filename to use for the Settings file. If this tag is not provided then NES Cafe will read from nescafe-settings.txt	Yes	[See Text]



Tag	Meaning	Optional	Default
GAMEGENIE	Specifies the Game Genie Codes to load at start-up for the current Applet Game. Up to four valid Game Genie Codes can be provided, with commas between the codes. For example: "ITYEOXUK, APZLGI"	Yes	[None]
LOADDATA URL	References the NES Cafe Load PHP Script This tag points at the NES Cafe Load PHP script, or to a custom CGI script that can handle requests for NES Cafe State or Save RAM files. If this Tag is not provided then the user cannot load any NES Cafe data files into the emulator. The NES Cafe Load PHP script is documented and is included with the Applet distribution (other language ports are also available). More information on this script can be found in the Example PHP Scripts section of this document and in section Error! Reference source not found. of this document.	Yes	[None]
SAVEDATA URL	References the NES Cafe Save PHP Script This tag points at the NES Cafe Save PHP script, or to a custom CGI script that can handle requests to save NES Cafe State, Save RAM, Screenshot and Movie files. If this Tag is not provided then the user cannot save any data back to the server. Information on configuring this can be found in section 4.4	Yes	[None]
LOADSTATE ONSTARTUP	Points to a NSS file to Load at Reset or Start-up If this value is set to the URL of a NES Cafe Save State (NSS) file then the State referenced by this tag will be loaded when NES Cafe starts.	Yes	[None]
IPSURL	An IPS File to patch the current ROM with. International Patching System files are used to change the game code. Many IPS files exist on the Internet for Nintendo games. If you want to use an IPS file with NES Cafe in Applet mode you can specify it using this IPSURL tag.	Yes	[None]
TIMETRIAL	Whether Time Trial Mode is enabled. This puts NES Cafe into Time Trial Mode, where a user can press F12 when they have reached a high score to transfer a screenshot back to the hosting server to prove their progress made.	Yes	False



4.3 THE NESCAFE SETTINGS FILE

The NES Cafe Settings file can be used to store general environment settings and custom options for the NES Cafe emulator, over and above those from the Applet tag. The NES Cafe settings file should be placed in the same directory as the main JAR file.

When specifying the controls, you can either use reserved keywords (such as ENTER, SPACE, SHIFT, CTRL or PGUP), the actual key value (such as A, B, C or Z) or the actual ASCII value (such as 65 for A, 66 for B or so on). Only the Joypad buttons (A, B, Start and Select) can be reassigned, the directions cannot currently be reassigned.

Controls Section	Description
Joypad_A	The key to use for Joy Pad 1's A button.
Joypad_B	The key to use for Joy Pad 1's B button.
Joypad_Start	The key to use for Joy Pad 1's Start button.
Joypad_Select	The key to use for Joy Pad 1's Select button.
Joypad_Up	The key to use for Joy Pad 1's Up button.
Joypad_Down	The key to use for Joy Pad 1's Down button.
Joypad_Left	The key to use for Joy Pad 1's Left button.
Joypad_Right	The key to use for Joy Pad 1's Right button.

The following graphics options are supported within the nescafe-settings.txt file:

Graphics Section	Description
ClipBorders	Whether the left and right screen borders are clipped Set this value to TRUE to prevent the left and right-most 8 pixels of the screen from being drawn, just like the original Nintendo did on most television sets.
HighResThumbnails	Thumbnails are taken at higher resolution. This increases the size of Save State and Save RAM files, but the thumbnail images are stored at higher resolution.
ImageFormat	Configures the default Image saving format Set to either PNG or GIF and determines the image format of all screen capture files. If this value is not provided then the default image format is PNG.
MovieFormat	The default Movie recording type Set this value to KEYSTROKES or ANIM_GIF to set the default recording type to either Keystroke or Animated GIF movies respectively. This can be used to conjunction with the above setting to force a movie recording type.
MovieMaxSize	Maximum size in bytes of an Animated GIF Movie. Set this value to the maximum size of Animated GIFs that you want NES Cafe to create. This will allow webmasters to control the amount of data these file occupy. Setting this value less than 1K will disable Animated Gif support.



Graphics Section	Description
MovieMode	The Allowed Movie Recording Formats This value specifies what recording formats are allowed for users to record their movies. Setting this value to ANY will allow both Animated GIFs and Keystroke movies to be recorded. Setting this value to FORCE_ANIMATED_GIF or FORCE_KEYSTROKES will force either Animated GIF or Keystroke movie recordings respectively. This is useful if you want your site to only accept a particular movie type.
ScreenSizeFactor	The factor to force the screen to draw at Valid values range from 1 to 3. This is the factor (amount of magnification) applied to the screen, independent of how the screen is sized in terms of width and height.

TimeShiftBuffer Section	Description
TimeshiftBufferLength	The length in units of the Time Shift Buffer.
TimeshiftBufferInterval	The number of seconds between each unit in the TSB. If this value is 2 and the length of the Time Shift Buffer (defined by TimeshiftBufferLength) is 30 then a State will be saved automatically each 2 seconds and the user will be able to jump back at most 60 seconds (2 times 30).

These options are available in the Standard version to hold the Proxy configuration:

Proxy Section	Description
UseProxy [Standard mode only]	If using a Proxy Server to connect to Internet
ProxyServer [Standard mode only]	The name of the Proxy Server
ProxyServerPort [Standard mode only]	The Proxy Server Port
ProxyServerUsername [Standard mode only]	The Proxy Server Username
ProxyServerPassword [Standard mode only]	The Proxy Server Password

These options are available to disable features of NES Cafe:

Security Section	Description
DisableDownloading	Specifies whether the ROM Download screen is disabled.
DisableFrameSkip	Whether the auto-frame skip should be disabled.
DisableSaveRAM	Whether the user is allowed to Save RAM.
DisableSaveState	Whether the user is allowed to Save States.
DisableSaveImage	Whether the user is allowed to Save Images.
DisableSaveMovie	Whether user is allowed to Save Movies.
DisableTimeShiftBuffer	Whether the user is allowed to use the Time Shift Buffer.
DisableGameGenieChanges	Whether the user can CHANGE Game Genie Settings.
DisableMenu	Whether the NES Cafe menu is disabled.
DisableReset	Whether the user can reset the current game.



4.4 NESCAFE APPLET SCRIPTS

A series of PHP (Hypertext Pre-processor) scripts are included with the Applet distribution. These scripts can be used by a PHP-enabled web-server to increase the functionality of NES Cafe. Each script is commented and the role of each script is explained below. These scripts could also be easily ported to other CGI languages.

Importantly, these scripts are run by NES Cafe and NES Cafe expects the data to be returned in a particular format. If you are running on a website that automatically inserts adverts or other material into web-pages then the data that NES Cafe receives back from these scripts may be altered and therefore this functionality will not work.

The Applet is able to use these scripts to save state or image data for the game by posting that data back to a web-server via these scripts. The scripts on your web-server pick up these requests and store the data to, or load the data from the disk on your web-server. For this to work you need to ensure that you have done the following:

1. You need to enable PHP on your web server. If you are using a web hosting company then most will have PHP enabled by default. If you are hosting your web-site from your own server then you need to ensure PHP is installed.
2. You need to include the `SAVEDATAURL` and `LOADDATAURL` tags to the Applet and ensure that these point at the `nescafesave.php` and `nescafeoad.php` scripts respectively. An example is shown below. If you do not provide these then NES Cafe will not be able to use any loading or saving functions. If you incorrectly specify the PHP scripts (type the wrong URL) you will be displayed an error message.
3. Some hosting companies do not allow scripts to store data on the web server (such as Windows hosting with GoDaddy). Unfortunately this will prevent the scripts from running (because they need to store the state information to disk). Please check with your web hosting company (if you are using one) that they don't have this restriction in place. If they do then you should find a less restrictive web hosting company.

An example Applet Tag is below, with the `nescafesave` and `nescafeoad` scripts specified:

```
<applet code=NES CafeApplet
...
  <param name=SAVEDATAURL value=scripts/nescafesave.php>
  <param name=LOADDATAURL value=scripts/nescafeoad.php>
</applet>
```



Detailed Description of Scripts:

Example Script Name	Description						
nescafesave.php	<p>This script is optional. It allows NES Cafe to save data back to your server (such as States, Save-RAM, Images and Movies). When the NES Cafe user uses a function that requires data to be transmitted back to the server NES Cafe will call this script.</p> <p>NES Cafe posts the following data to this script when the user wants to save a State, SaveRAM, Movie or Screen shot data file (additional options may be appended to the URL as required):</p> <table><tr><td>contenttype</td><td>: the type of NES Cafe data being transmitted</td></tr><tr><td>gamename</td><td>: The name of the NES game running</td></tr><tr><td>saveslot</td><td>: The Save Slot number (for Save States)</td></tr></table> <p>The script receives a Saved State, Save-RAM, Screenshot or Animated GIF file from NES Cafe (depending on the value of Content Type) and stores the data file to the Server.</p> <p>The files are read from the following locations on the Server:</p> <pre>states/username-gamename.nss saveram/username-gamename.sav screenshots/username-gamename.gif timetrials/username-gamename.gif</pre> <p>To enable this script you must install it on your website and reference it using the SAVEDATAURL Applet Tag as follows:</p> <pre><param name= SAVEDATAURL value= "nescafesave.php?user=UserName"></pre>	contenttype	: the type of NES Cafe data being transmitted	gamename	: The name of the NES game running	saveslot	: The Save Slot number (for Save States)
contenttype	: the type of NES Cafe data being transmitted						
gamename	: The name of the NES game running						
saveslot	: The Save Slot number (for Save States)						
showthumb.php	<p>This script can be run against a NES Cafe Saved State or Save RAM file on the Server to return the thumbnail image from inside the file as a GIF or PNG image file. You can call this script from your browser by passing the filename as <i>file</i>.</p> <pre>http://domain/showthumb.php?file=savestatefile.nss http://domain/showthumb.php?file=saveramfile.sav</pre> <p>Please note that this script does not run from the Applet Tag.</p>						



Example Script Name	Description						
nescafe-load.php	<p>This script is optional. It allows NES Cafe to load data from your server (such as States, Save-RAM and Movies). When the NES Cafe user uses a function that requires data to be retrieved from your web-server NES Cafe will call this script.</p> <p>NES Cafe posts the following data to this script when the user wants to load either a NES Cafe State or Save-RAM data file (additional options may be appended to the URL as required):</p> <table><tr><td>contenttype</td><td>: the type of NES Cafe data being transmitted</td></tr><tr><td>gamename</td><td>: The name of the NES game running</td></tr><tr><td>saveslot</td><td>: The Save Slot number (for Save States)</td></tr></table> <p>The files are read from the following locations on the Server:</p> <pre>states/username-gamename.nss saveram/username-gamename.sav</pre> <p>To enable this script you must install it on your website and reference it using the LOADDATAURL Applet Tag as below. You can also specify the username to be used in the saved filename by appending it onto the end of the PARAM as shown:</p> <pre><param name= LOADDATAURL value= "nescafe-load.php?user= <i>UserName</i>"></pre> <p>Important Note Regarding Save RAM:</p> <p>When loading Save RAM files, if no Save Ram is available on the server for the specified user/game, then it is <i>very</i> important that this script returns the phase "NOSAVRAM" (as per the example script included with the NES Cafe Applet distribution).</p> <p>This response informs NES Cafe that there wasn't a communication error and, if as a result of playing the game some SaveRAM content gets generated, it would be alright for NES Cafe to attempt to save it back to the server.</p> <p>If the phase "NOSAVRAM" does <i>not</i> get returned by this script then NES Cafe assumes that a communications error occurred and does not attempt to save any generated SaveRAM back to the server in-case the saving process overwrites the server-side SaveRAM that was intermittently unavailable during the load.</p>	contenttype	: the type of NES Cafe data being transmitted	gamename	: The name of the NES game running	saveslot	: The Save Slot number (for Save States)
contenttype	: the type of NES Cafe data being transmitted						
gamename	: The name of the NES game running						
saveslot	: The Save Slot number (for Save States)						



4.5 TIME TRIAL MODE

Time Trial mode can be enabled by adding the TIMETRIAL parameter to the Applet Tag and setting the value to TRUE (see section 4.2 for configuration). This is useful for website owners who want to run championships for games in NES Cafe with their users.

In Time Trial mode the user can press F12 to submit a screenshot back to the server of their current progress point, for example when they have reached a particular high score or a point in the game. The screenshot is sent to the SAVEDATAURL with the content type of *nescafe/timetrial*. The time in seconds they have been playing the game for until they pressed F12 can also be picked up by the script by reading the posted value *time*.



NES Cafe

Section 5: Project Status and Thanks

Information on the current state of the project and recognition for those that have helped.



5 PROJECT STATUS AND THANKS

5.1 HARDWARE EMULATED

The following list of hardware is emulated by NES Cafe:

- The n6502 Micro-processor
- The Nintendo Picture Processing Unit (PPU)
- 5 Sound Channels (2 Square, Triangle, Noise and DMC)
- NES Joy-pad and Light Gun

Additional supported features:

- Allows users to Save and Load the State of the NES
- Allows users to record their game-play for future playback
- Emulates and interprets Game Genie Codes
- Provides a built-in ROM Download Client
- Provides real-time support for IPS Patches for NES games
- Provides a configurable Time Shift Buffer for jumping back in time.
- Provides a 6502 code and memory Profiling Engine

The following Memory Management Controllers (MMC's) are supported:

001: Nintendo MMC1	065: Irem H-3001	119: TQ-ROM
002: PROM Switch (UNROM)	066: Bandai 74161/32	122: Sunsoft 74161/32
003: VROM Switch (CNROM)	067: Sunsoft Mapper 3	140: Mapper 140
004: Nintendo MMC3	068: Sunsoft Mapper 4	151: VS Unisystem (Konami)
005: Nintendo MMC5	070: 74161/32	180: Nichibutsu
006: Konami FFE F4xxx	071: Camerica Mapper	181: Hacker International Type 2
007: Rare AOROM	072: Jaleco Early Mapper 0	182: PC-SuperDonkeyKong
008: Konami FFE F3xxx	073: Konami VRC3	183: Gimmick (Bootleg)
009: Nintendo MMC2	075: Jaleco/Konami VRC1	184: Sunsoft 74161/32
010: Nintendo MMC4	076: Namco 109	185: CHR-ROM Disable Protect
011: Color Dreams	077: Irem Early Mapper 0	189: Street Fighter 2 Yoko
015: 100-in-1	078: Jaleco 74161/32	222: Mapper 222
017: Konami FFE F8xxx	079: Nina-3 (AVE)	225: 72-in-1
018: Jaleco SS8806	080: Taito X-005	226: 76-in-1
021: Konami VRC4 2 ^a	082: Taito C075	227: 1200-in-1
022: Konami VRC4 type 1B	086: Jaleco Early Mapper 2	228: Action 52
023: Konami VRC2 type B	087: Konami 74161/32	229: 31-in-1
032: Irem G-101	088: Namco 118	231: 20-in-1
033: Taito TC0190 TC0350	089: Sunsoft Early Mapper	232: Quattro Games
034: Nina-1	091: PC-HK-SF3	233: 42-in-1
040: SMB2J	092: Jaleco Early Mapper 1	236: 800-in-1
041: Caltron 6-in-1	093: Sunsoft 74161/32	240: Gen Ke Le Zhuan
046: Rumble Station	094: Capcom 74161/32	242: Wai Xing Zhan Shi
047: NES-QJ	097: Irem 74161/32	243: PC-Sachen/Hacker
048: Taito TC190V	099: VS Unisystem	244: Mapper 244
050: SMB2J	101: Jaleco 74161/32	245: Yong Zhe Dou E Long
057: 54-in-1	105: Nintendo World Championship	246: Phone Serm Berm
058: 68-in-1	113: PC-Sachen/Hacker	248: Bao Qing Tian
060: 65-in-1	117: PC-Future	251: Mapper 251
062: Mapper 62	118: IQS MMC3	255: 110-in-1
064: Tengen Rambo-1		



5.2 CREDITS AND THANKS

Special Thanks

Niamh Fitzgerald

For their involvement

Daniel Fisher [everyvideogame.com]
Jeremy Chadwick
John Steiner
Jonathan Hudghton [emu.me.uk]
Rob Gonzalez
SmashManiac
Tyler Gibson
Zheng Zhu

For their Documentation

Brad Taylor (sound)
Brice Fines (sprite priorities)
Darren Ranalli (NEStor)
Firebug (memory Mappers)
Freddy Offenga (undocumented opcodes)
Jeremy Chadwick
Loopy (scrolling)
Marat Fayzullin
Matt Conte



5.3 RECENT REVISION HISTORY

NES Cafe 1.030 (August 2010)

Headlines:

- Changed default key mappings and general bug fixes
-

NES Cafe 1.000 (December 2007)

Headlines:

- Authorisation check at start-up removed (originally required to report game usage and issues with beta)
- Sound, game graphics and UI graphics have all been improved

Fixes:

- Fixed issues with sound, and discontinued the mute versions of the emulator
- Fixed issues where loaded state files weren't starting the sound correctly
- Fixed bug where text would not be presented in the correct codepage on some machines
- Fixed bug where when a NES ROM did not load correctly an error message was not being displayed
- Fixed bug where when running using the Applet Viewer some of the tags weren't being interpreted correctly
- Fixed bug where settings files and ROMs were being cached, and the latest version may not be being read
- Fixed bug where lowercase keys in the settings file for the controls were not being interpreted correctly
- Fixed bug where the / key could not be assigned to a key control in the settings file or the User Interface
- Fixed bug where LOADSTATE tag was not being interpreted correctly unless the URL was specified in full
- Fixed bug where screen would flicker when ROM files were loading
- Fixed issues with error messages, they are now more meaningful and better explain the underlying issues

Functionality Removed:

- Removed Override Engine (this was not heavily used)
- Removed Activity Monitor (because Authorisation Check is removed, this would not work)
- Removed Debugger from Applet version (replaced by Code Profiler in Standard version)
- Removed Image Smoothing and replaced with improved image scaling routines
- Removed Sprite Tile view from Applet (this was not heavily used)

Functionality Added/Changed:

- Added F9 option to standard version to dump executable code (profiles the code as it runs)
 - Changed settings filename to nescafe-settings.txt (to prevent issues with MIME types on web-servers)
 - Changed how the CPU interprets undocumented operation codes, they now cause the CPU to halt
 - NES Cafe Applet screen now dynamically resizes if the Applet canvas changes size
 - Cleaned up the Time Trial mode, pressing T causes the current screen and run-time data to be captured.
-

NES Cafe 0.706 (February 2007)

- Fixed bug where Save States were not working for indirect URLs in Applet Tags
 - General maintenance improvements and updates to documentation
-

NES Cafe 0.705 (September 2006)

- Maintenance release, incorporating improvements to remote debugging and updates to documentation
 - Now forces Applet installations to have a nescafe.settings file at start-up
-



NES Cafe 0.704 (August 2006)

- Added Online Activity Monitor to allow users to view other games being played in real-time from other sites
 - Added DisableActivityMonitor tag to the NES Cafe settings file to prevent the Activity Monitor from being used
 - Added StartActivityMonitor tag to the NES Cafe settings file to cause it to start when NES Cafe starts
 - Changed APPLET tags in the distributions to be OBJECT tags for better compatibility (docs changed also)
 - Added ScreenSizeFactor factor to the NES Cafe settings file
-