

Wallpaper Morpher (aka Wallmorph)

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Summary

Wallmorph looks up information about your system, writes the data to designated locations in a BMP image file that you supply, then makes the modified BMP file your desktop background image. The types and location of data are specified using a configuration file that looks like XML.

Running the Program

At run time the *Wallmorph* program either loads the default input file, "wallmorph.xml" or the configuration file specified on the command line. The syntax for the non-default configuration file name is

```
C:\current directory> wallmorph config="configfilename.xml"
```

If no configuration file is specified on the command line and the default file is not present

Configuration File Syntax

A configuration file consists of XML-like specifications for which data and text to display, where to display it, and what style to display it with. There are two main groups of specifications: global settings, and display-output specifications. The file can contain comments in the XML style: `<!-- this is a comment -->`

Global Settings

The `<globalsettings>` section can occur anywhere in the document. It is read once, before the display-output sections are read and interpreted. The section has the form:

```
<globalsettings>
  <usesscreendepth/>
  <backgroundstyle value="center">
  <inputbmp name="WallMorph.bmp"/>
  <outputbmp name="WallMorph-Info.bmp"/>
</globalsettings>
```

Each component is described below.

`<usesscreendepth/>`

Description: if this tag is present, the program will convert all images to the same format as the current screen settings of your computer. For example, if the input BMP is 8-bit color and your display is set to 24-bit color then the input image will be converted to 24-bit color before display.

Possible settings: present or absent

Default value: use input bitmap image format

`<backgroundstyle value= "xxx">`

Description: if this tag is present, it specifies whether to tile, stretch, or center the background image.

Possible settings for the *value* attribute: center, tile, stretch

Default value: center

<inputbmp name= "filename.bmp">

Description: if this tag is present, it specifies the location of the input BMP image.

Possible settings for the *name* attribute: path and file name of the desired image

Default value: Wallmorph.bmp

<outputbmp name= "filename.bmp">

Description: if this tag is present, it specifies the output location for the processed image that will be made your background.

Possible settings for the *name* attribute: path and file name of the desired image

Default value: WallmorphInfo.bmp

Display Output

There can be multiple *<displayoutput>* sections in a configuration file. A single *<displayoutput>* section consists of an optional *<textsettings>* subsection and an *<output>* specification section. The *<textsettings>* subsection is optional in that there are default settings for text styles. In addition, successive *<textsettings>* components replace the previous settings and will be used until new settings are encountered. The section has the form

```
<displayoutput>
  <textsettings>
    <!-- detailed settings -->
  </textsettings>
  <output>
    <!-- detailed settings -->
  </output>
</displayoutput>
```

Text Settings Subsection

This *<textsettings>* subsection is composed of several subsettings. These are described below.

<textstart x="nnn" y="nnn" />

Description: Specifies the initial location for the next text output (the current cursor location).

Possible settings for the *x* and *y* attributes: whatever is compatible with your input image

Default value: x=0, y=0 or the last specified location

<textalign value="center" />

Description: Specifies how the text is written relative to the cursor.

Possible settings for the *value* attribute: left , center right

Default value: center, or the last specified style

<textcolor red="nnn" green="nnn" blue="nnn"/>

Description: Specifies the color of the text. If the image format does not support RGB colors then the closest image palette color is used.

Possible settings for the *red,green,blue* attributes: 0-255 for each or red, green, and blue

Default values: red=blue=green=200 or the last specified values

<backgroundcolor red="nnn" green="nnn" blue="nnn" transparent="n"/>

Description: Specifies the color of the background for the text. If the transparent attribute is nonzero then the background transparent, showing the BMP image. If the image format does not support RGB colors then the closest image palette color is used.

Possible settings for the *red,green,blue* attributes: 0-255 for each or red, green, and blue

Possible settings for the *transparent* attribute: zero (false) or non-zero (true)

Default values: red=blue=green=0 or the last specified values; transparent = 1

Description: Specifies the line/character spacing, font size, font weight, and font name.

extra: extra pixel spacing between characters and lines

points: point size for the font

weight: font stroke weight

face: font name; if the font is not available the OS picks the closest match

Possible settings for the attributes:

extra: can be positive or negative

points: font dependent

weight: 0 to 1000

face: system dependent

Default values:

extra: 1

points: 16

weight: 600

face: Arial

<executable name="executablename.exe"/>

Description: Specifies a path/file about which information can be displayed.

Possible settings for the *name* attribute: any executable file on your system

Default value: WallMorph.exe

Output Subsection

This *<output>* subsection is composed of a sequence of *<textline>* descriptions that include freeform text and variable-replacement tags. The variables represent various types of information about your system and will be replaced with that information. Each *<textline>* specification can include text formatting specifications that override the defaults for that line of text.

```
<textline extra="n" points="nn" weight="nnn" face="fontname" align="xxx" extra="n" bgcolor="xx" textcolor="xx" transparent="n" >
```

Description: these.

extra: extra pixel spacing between characters and lines

points: point size for the font

weight: font stroke weight

face: font name; if the font is not available the OS picks the closest match

align: specifies how the text is written relative to the cursor

extra: specifies the color of the text. If the image format does not support RGB colors then the closest image palette color is used.

bgcolor: specifies the color of the background for the text. If the image format does not support RGB colors then the closest image palette color is used.

textcolor: font name; if the font is not available the OS picks the closest match

transparent: if the transparent attribute is nonzero then the background transparent, showing the BMP image.

Possible settings for the attributes:

extra: can be positive or negative

points: font dependent

weight: 0 to 1000

face: system dependent

align: center, left, right

extra: values are in pixel count and can be positive or negative

bgcolor: 6 hex digits in the format RRGGBB; RR, GG, and BB can be in 0-255 (0-FF)

textcolor: : 6 hex digits in the format RRGGBB; RR, GG, and BB can be in 0-255 (0-FF)

transparent: zero or nonzero

Default values:

extra: 1

points: 16

weight: 600

face: Arial

align: center

extra: 1

bgcolor: 000000

textcolor: C8C8C8

transparent: 1

System Information Variables

Each <textline> section can contain variables that will be replaced with the designated piece of information. The variable specification is text flanked by percent signs, such as %DOMAIN%. The variable names and corresponding data description are listed below. Each group of variables is directly related to information available from various Windows API functions.

Computer and Operating System Information

%USERNAME%	- the logged-in user name
%HOSTNAME%	- the name of the host
%DOMAIN%	- the windows domain
%OS%	- the operating system name
%SERVICEPACK%	- the service pack status of the OS
%BUILD%	- the build number of the OS

Disk Volume Information

Replace the letter 'X' in _X_ with the driver letter of interest.

%VOLUME_X_INFO%	- free space, file system type, volume name, serial number
-----------------	--

Network Interface Information

Replace the letter 'N' in _N_ with the interface number of interest. Interface numbers begin at 1.

%INTERFACE_N_NAME%	- Text name of the interface
%INTERFACE_N_TYPE%	- type, e.g., MS TCP Loopback
%INTERFACE_N_MTU%	- Maximum transfer unit (bits transferred per packet)
%INTERFACE_N_SPEED%	- interface speed in bits per second
%INTERFACE_N_MAC%	- the MAC address of the interface

Network Adapter Information

Replace the letter 'N' in _N_ with the adapter number of interest. Adapter numbers begin at 1.

%ADAPTER_N_NAME%	- Text name of the adapter
%ADAPTER_N_TYPE%	- type, eg., ETHERNET
%ADAPTER_N_DHCPSEVER%	- if DHCP is enabled, the server used
%ADAPTER_N_DHCPLEASED%	- if DHCP is enabled, the lease date
%ADAPTER_N_DHCPEXPIRES%	- if DHCP is enabled, the expiration date
%ADAPTER_N_IPLIST%	- IP addresses related to this interface
%ADAPTER_N_MASKLIST%	- network masks for the IP addresses
%ADAPTER_N_DNSLIST%	- list of DNS servers used by this interface
%ADAPTER_IP_LIST%	- all IP addresses for all adapters
%ADAPTER_MAC_LIST%	- all network masks for all IP addresses

Processor Information

%PROCCOUNT%	- number of processors in the machine
%PROCNAME%	- the process name string
%PROCMHz%	- processor speed in megahertz
%PROCINFO%	- processor information string
%RAMINFO%	- installed physical RAM

Executable Information

%EXECUTABLE_PRODUCT%	- the product string from the executable
%EXECUTABLE_VERSION%	- the version string from the executable
%EXECUTABLE_COPYRIGHT%	- the copyright string from the executable
%EXECUTABLE_COMPANY%	- the company name string from the executable

Appendix – Example Configuration File

```
<!-- start of configuration file -->

<globalsettings>
  <usescreendepth/>
  <backgroundstyle value="center">
  <inputbmp name="WallMorph.bmp"/>
  <outputbmp name="WallMorph-Info.bmp"/>
</globalsettings>

<!-- chunk number one -- fancy type with the basics :) -->
<displayoutput>
  <textsettings>
    <textstart x="512" y="0" />
    <textalign value="center" />
    <textcolor red="0" green="0" blue="0"/>
    <backgroundcolor red="1" green="1" blue="1" transparent="1"/>
    <font extra="0" points="20" weight="1000" face="Monotype Corsiva" />
  </textsettings>

  <output>
    <textline textcolor="00FF00" face="arial" points="10" weight="900" >User: %USERNAME% Host: %HOSTNAME%</textline>
    <textline face="arial" points="12" weight="300" >Domain: %DOMAIN%</textline>
    <textline extra="1" points="14" weight="500" >%OS% %SERVICEPACK% Build %BUILD%</textline>
    <textline bgcolor="00FF00" transparent="0" points="16" weight="700" >%INTERFACE_1_NAME% %INTERFACE_1_TYPE%</textline>
    <textline bgcolor="00FF00" transparent="0" points="16" weight="700" > %INTERFACE_1_MTU% %INTERFACE_1_SPEED% </textline>
    <textline extra="2" points="18" weight="900" >%INTERFACE_2_NAME% %INTERFACE_2_TYPE% %INTERFACE_2_MTU% %INTERFACE_2_SPEED% </textline>
  </output>
</displayoutput>

<!-- chunk number 2 -- system-like type with info about the disk drives -->
<displayoutput>
  <textsettings>
    <textstart x="200" y="300" />
    <textalign value="left" />
    <textcolor red="0" green="0" blue="200"/>
    <backgroundcolor red="1" green="1" blue="1" transparent="1"/>
    <font extra="0" points="16" weight="600" face="Lucida Console" />
  </textsettings>

  <output>
    <textline>%VOLUME_A_INFO%</textline>
    <textline>%VOLUME_C_INFO%</textline>
    <textline>%VOLUME_E_INFO%</textline>
    <textline>%VOLUME_F_INFO%</textline>
    <textline>%VOLUME_H_INFO%</textline>
  </output>
</displayoutput>

<!-- chunk number 3 -- right justified stuff for all the other things -->
<displayoutput>
  <textsettings>
    <textstart x="1000" y="500" />
    <textalign value="right" />
```



```
<textcolor red="90" green="200" blue="150"/>
<backgroundcolor red="50" green="20" blue="10" transparent="0" />
<font extra="1" points="8" weight="100" face="Verdana" />
<executable name="WallMorph.exe"/>
</textsettings>

<output>
  <textline points="10" >%ADAPTER_1_NAME% %ADAPTER_1_TYPE%</textline>
  <textline points="11" >DHCP: %ADAPTER_1_DHCPSEVER% Lease: %ADAPTER_1_DHCLEASED% Expires: %ADAPTER_1_DHCPEXPIRES%</textline>
  <textline points="12" >IPS: %ADAPTER_1_IPLIST% MASKS: %ADAPTER_1_MASKLIST%</textline>
  <textline points="13" >DNS: %ADAPTER_1_DNSLIST%</textline>
  <textline points="14" >ALL IP: %ADAPTER_IP_LIST%</textline>
  <textline points="15" >ALL MAC: %ADAPTER_MAC_LIST%</textline>
  <textline points="16" >%PROCCOUNT% %PROCNAME% @ %PROCMMHZ% WITH %RAMINFO%</textline>
  <textline points="17" >%EXECUTABLE_PRODUCT% V%EXECUTABLE_VERSION%</textline>
  <textline points="18" >%EXECUTABLE_COPYRIGHT% %EXECUTABLE_COMPANY%</textline>
</output>
</displayoutput>
```