Installing Links 2003 on Windows 11

There are a series of step need to to get Links running on Windows 11, this document seeks to take you through them, the information has been pulled from many sources. Specifically an ASUS notebook with FHD graphics and an Acer Desktop with WUXGA graphics were used in testing.

These instructions are for those systems where you need to use the dgVoodoo wrapper. This will be any system that has Intel graphics, and could include systems with graphic chipsets by other manufacturers. No instructions are included here for getting Nvidia and Radeon chipsets working without dgVoodoo.

The steps given below are the basics that are needed. There is much discussion on what exactly needs to be installed. It appears that taking the following path can prevents many issues:

1. Install Links 2003
2. Install 1.02 patch
3. Install 1.05 Path
4. Replace RuKsHuK.exe to fix the "No CD" problem on start up
5. Install 1.07 patch. This incorporates the 1.06 mod, its own improvements and also includes patches 2-4.
6. Nvidia Patch

These are all included in the steps below some as "optional".

There is no need to reboot between installs.

These instructions were developed using a Links 2003 CD kit.

Step 1

Firstly install Links 2003 From the CD kit. There are installation instructions in the kit if needed. It is suggested installing Links into a folder outside of the "Program Folders".

Note that Links will however not run after the installation, it wants Links CD 1 and Administration rights, but neither of which will help, this is due to the security system Microsoft used when Links was released, this is resolved in the later patches you will apply.

A program group and a desktop icon will have been created by the installation process.

This step should only be seen as getting the base software installed, not in having a running application.

Step 2 (Optional)

Install:

- Install 1.02 patch
- Install 1.05 Path
- Replace RuKsHuK.exe to fix the "No CD" problem on start up

I do not have a current pointer for these patches. They should not be needed but are referred to here for completeness, some long term Links users prefer to install each patch in turn.

Step 3

Install the Links V1.07 patch. This is a consolidated patch, that incorporates prior patches as well as new fixes, it is named Links_1-07_final.exe and can be downloaded from https://www.linkscountryclub.com/.

In summary this one patch should install:

- The V1.02 patch
- The V1.05 patch
- The MOD (V1.06)
- Patch to run without CD 1 in the drive
- The V1.07 patch itself

After installing this patch Links 2003 will start but is likely to be less than optimal at best and there could well be graphic display problems.

Step 4

Install:

- Nvidia Patch

While the name of the patch implies it is only for Nvidia equipped machines it has been observed that this patch addresses some more general video issues.

Step 5

Install the Direct3D fix. This is the specific dgVoodoo software version that is known to work with Links. What this is doing is encasing a Direct X wrapper between Links and the operating system and converting these calls to what new versions of Windows can handle.

This fix can be downloaded from linkscorner.org.

The installation of this is really the copying of a number of files and then performing a configuration as follows.

1. From the MS sub-folder, copy the x86 DLLs into your Links 2003 folder. By default, this is C:\Program Files (x86)\Microsoft Games\Links 2003 on 64-bit versions of Windows.
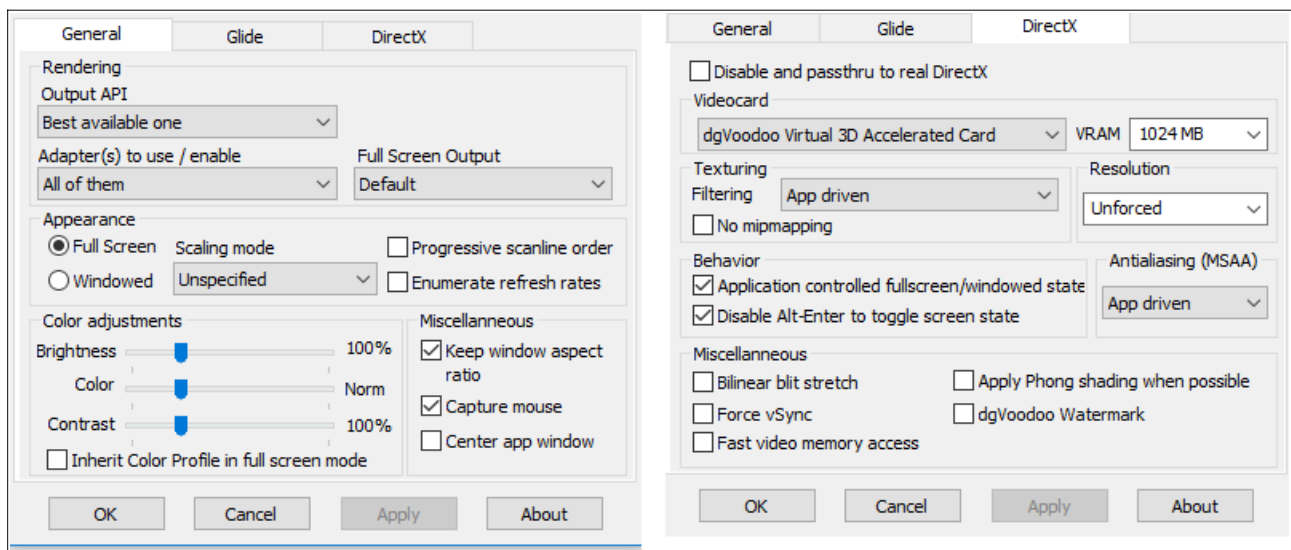
The 'bitness' of the DLLs needs to match the 'bitness' of Links, and of course Links is a 32 bit application.

2. DgVoodoo reads the configuration from a configuration file named dgVoodoo.conf. While dgVoodoo includes a configuration file, you also have the dgVoodoo Control Panel Application to create and modify the content of these configuration files in a convenient GUI way, you can possibly have multiple configuration files perhaps one for each application.

So, copy dgVoodooCpl.exe to your desktop or any other folder you prefer and start it. You will see three different tabs set to the default configuration. If you change something and press the OK or Apply buttons then the CPL writes the current configuration into a configuration file. It saves this to the folder you select on the Config folder/running instance roll down menu at the top of the Control Panel.

By default it chooses your login-user appdata folder but you can add extra ones manually, say add and choose your game folder if you want your configuration file be created there. For Links usage it is probably best to save the configuration file to the Links Directory, where it can live with the DLLs, and that is what has been done here.

So run dgvoodooCpl.exe to configure the wrapper. Configure the settings on the General and Direct X tabs to match the configuration as shown below. But on the opening configuration screen set the folder to the Links folder.

It is suggested you try the Antialaising settings as well, the ideal setting is 16x.

If you have a translucent imprint in the lower right of your screen that says "dgvoodoo." Open the dgvoodooCpl control panel, set dgvoodoo to the Links folder so it uses the configuration file there. Then go to DirectX tab, uncheck dgVoodoo Watermark and choose "Apply".

Note I have tested many versions of dgVoodoo to see if any work any better, specifically, I was initially looking for support for translucent golfer shadows. In testing versions from 2.55.3 through to 2.81.3 all worked, without support for translucent shadows. Versions past 2.81.3 have problems with reflective water.

Step 5

The next step is to change the start up icon, on both the desktop and perhaps in the menu.

Right Click on the desktop icon and choose Properties. On the Compatibility tab, select to run the program in Compatibility mode for Windows XP Service Pack 3 and also select to Run this program as Administrator.

Step 6

Before going any further you need to start Links in order for the registry settings to be created for the user. The previous steps should mean that Links will start with default settings, but it may well ask to download and install an additional component called Direct Play, if this has not previously been installed, choose to do this.

Links should start, you can try practice mode if you like. At this stage it is unlikely you will be running at a resolution you will like.

Step 7

Now you need to change the Windows registry setting, specifically for Links, to match the native video mode of your system, or the mode that gives the best overall result.

Run regedit and take the path:

```
HKEY_CURRENT_USER
  Software
    Microsoft
      Microsoft Games
        Links 2003
          DisplaySettings
```

Change the Mode to the appropriate value as per the table below. Some notes are also provided regarding some specific video issues encountered during testing.

Mode	Resolution	Known As	Aspect
15	1920 x 1200	WUXGA	16:10
14	1920 x 1080	FHD 1080p	16:9
13 [3]	1808 x 1008		~16.9
12	1680 x 1050	WSXGA+	16:10
11	1440 x 900	WXGA+	16:10
10 [2]	1366 x 768	WXGA HD	~16:9
9	1360 x 768 [1]	FWXGA	~16:9
8	1280 x 960	SXGA-	4:3
7	1280 x 800	WXGA (16:10)	16:10
6	1280 x 768	WXGA (15:9)	5:3
5	1280 x 720	WXGA 720p (16:9)	16:9
4 [4]	1600 x 1200	UXGA	4:3
3 [*]	1280 x 1024	SXGA	5:4
2 [*]	1024 x 768	XGA	4:3
1 [*]	800 x 600	SVGA	4:3

[*] These are the original values as at Links 2003 Patch 1.05 and it is expected that one of modes 1-3 will be used on initial start up.

[1] Adjusted resolution to fit into an 8Mbit memory chip.
[2] This resolution resulted in the disappearing golfer and missing menu items under testing on three test machines, one that has FHD (1920 x 1080) resolution, one that has WUXGA (1920 x 1200) resolution and one that has WXGA HD (1366 x 768) resolution. Furthermore this issue was found under Linux as well.
[3] Unable to get this resolution to work, system reported "A minimum setting of 800 x 600 is required" on 2 test machines, one that has FHD (1920 x 1080) resolution and one that has WUXGA (1920 x 1200) resolution.
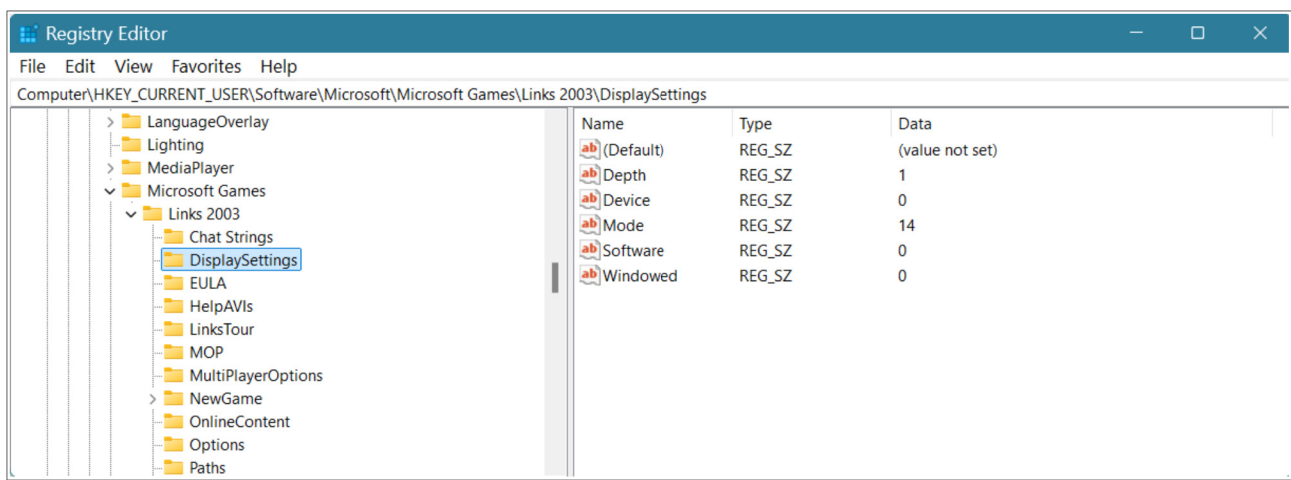[4] Unable to get this resolution to work, system reported "A minimum setting of 800 x 600 is required" on a test machine that has FHD (1920 x 1080) resolution. It does work on a machine that has WUXGA (1920 x 1200) resolution.

In summary just because a resolution should work on a system it may or may not have problems. Trial and error can be required. It has been observed that Links works best when the resolution selected has the same aspect ratio as the native setting, conversely problems were encountered when it was set to a different aspect ratio.

All testing was done with Links in full screen mode, so no consideration was given to running Links in a Window, that may yield different results.

Ideally you should also use 32 bit video mode, this is the "Depth" setting in the registry, 32 bit is a setting of 1.

The registry should look something like:

This is a very common setup for a system with a standard FHD monitor of 1920 x 1080.

Once you have made your changes in regedit, you can verify your Links screen resolution settings by starting Links and going into Links/Options and selecting the 'system info' button at the bottom of the screen. The 'Video Resolution' there should reflect the option you entered in regedit, it will also indicate the bit mode. Choosing 'Graphic Settings' in the Settings box on the same Options screen may or may not report the correct 'Display Mode'. Do not attempt to change your video resolution in here after you use regedit, you are likely to need to go back and use regedit if you do.

You may need to try different video modes in order to get the best overall result, the main thing to note is to not exceed the resolution your system is capable of, that will definitely not work. If you have a problem, start by dropping down to the next highest resolution your system could support. You may also need to use a resolution as previously indicated that has the aspect ratio that the screen has native support for.

Step 8

If you want to eliminate the "Allow this app from an unknown publisher to make changes to your device" popup you can follow the steps mentioned below to modify the UAC settings:

1. In the search bar, type **Control Panel**, and press **Enter**.
2. In the **Control Panel** window, click on the **System and Security** option.
3. Click on the **Change User Account Control settings** option in the right pane.
4. In the **User Account Control Settings** window, drag the scroller downwards (**Never notify).**
5. Restart the program again after clicking the **OK** button.

Tested Systems

For information the systems that were using in testing had the following specifications:

Windows 11

11th Gen Intel Core i5-1135G7 with Intel Iris Xe Graphics
13th Gen Intel Core i5-13400 with Intel UHD Graphics 730

Windows 10

7th Gen Intel Core i5-7200U with Intel UHD Graphics 620

Notes

- You may need to restart links more than once after making changes
- Windows, with the standard setup, will ask if you want to allow the program to make changes to your system each time it starts, select yes, recall that Links can write files to the program folder when in use.
- The 7th Gen Windows 10 system has a native resolution of 1366 x 768. Using this resolution resulted in a disappearing golfer and incomplete menus. The solution in this case is to set the resolution in Links to 1280 x 720 and allow Links to scale the image to fit the native resolution.