HOWTO: Creating a bootable OpenGates CD

1. Copyright

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2. About this HOWTO

Due to Micro$oft's license policy, I'm unable to distribute a ready to use bootable OpenGates CD or ISO image. Therefore, I tried to make the steps to build your own CD as easy as possible by writing a BartPE plug-in. But nevertheless, there are some important steps to do where people often screw up ;) and then won't use OpenGates. And as I think that OpenGates can be such a powerful tool, especially in conjunction with xmount to boot acquired hard-disk images in virtual machines, I wrote this step-by-step HOWTO on how to create an OpenGates CD.

3. Get and install required software

To build your own OpenGates boot CD, you'll need three things: A Windows XP installation CD, BartPE and the OpenGates BartPE plug-in. BartPE can be downloaded from http://www.nu2.nu/pebuilder/. While writing this HOWTO, the latest version available was v3.1.10a but any newer version should work too. The OpenGates BartPE plug-in can be downloaded from https://www.pinguin.lu. Make sure you grab the BartPE plug-in and not the standard win32 version!

After you downloaded BartPE and OpenGates, you can begin by installing BartPE. Use the default location it proposes during installation as this makes things easier later on. And you probably want to allow the installer to create a desktop shortcut to ease starting BartPE. But don't run BartPE for now. Once the installation is complete, you can move on to the next step.

4. Extract OpenGates

Open your explorer and navigate to the "plugin" folder located in BartPE's installation directory. If you didn't change the default location above and are using v3.1.10a it should be "C:\pebuilder3110a\plugin\". Now extract the downloaded OpenGates ZIP file into this directory. Make sure it creates a folder named OpenGates as shown below.
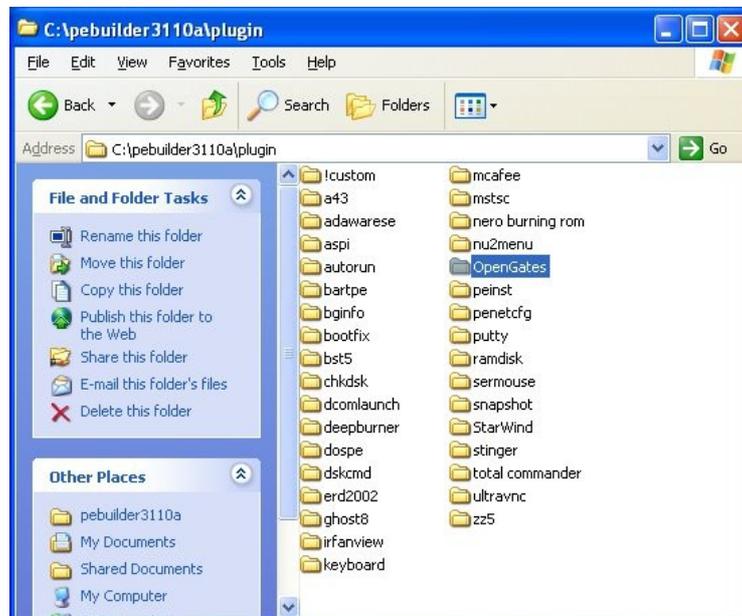
5. Configure BartPE

Start BartPE and agree to it's license terms. After this, BartPE allows you to search for Windows files, but as you're using a CD, you don't have to do this. Insert your Windows CD and set the "Source" under "Builder" to the path of your CD-Rom drive. Once setup, you probably want BartPE to create an ISO image rather than burning a CD so select "Create ISO image" under "Media output" and give it a meaningful name like "OpenGates-*version*.iso" replacing *version* with OpenGates's current version. Your BartPE window should now look similar to the following one.
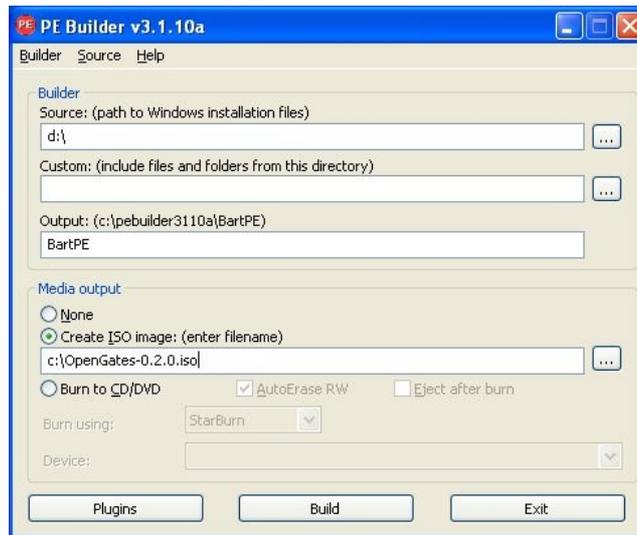
6. Configure BartPE plug-ins

Once you've setup BartPE, you can configure it's plug-ins. The plug-ins consist of features and programs that should be included on your boot CD. As BartPE was designed to generate a Windows rescue disk, there is a bunch of plug-ins that aren't needed on the OpenGates CD. To access the plug-in configuration, click on the "Plugins" button. A window like the one below should pop-up.
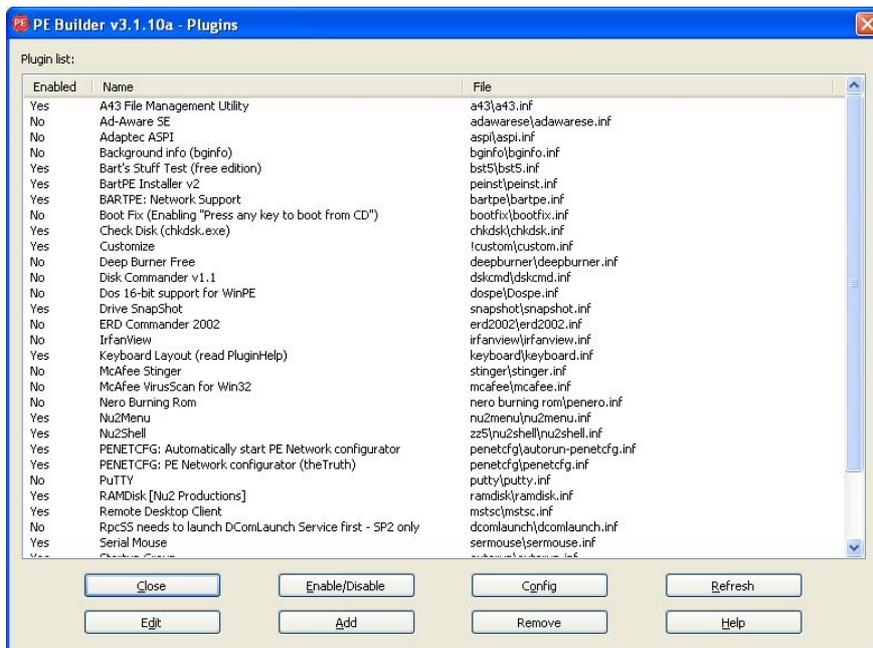
Make sure there is an OpenGates plug-in listed here. If it isn't, you screwed something up while extracting OpenGates to the plug-in directory! Make sure you downloaded the right package, extracted it to the right place and the OpenGates folder doesn't contain any sub-folder. After you've fixed the problem, restart BartPE and follow on.

6.1. Remove unneeded plug-ins

As said above, there are many plug-ins we don't need. For a minimalistic OpenGates boot CD, you'll only need the following ones:

- A43 File Management Utility
- Boot Fix
- Customize
- Keyboard Layout
- Nu2Menu
- Nu2Shell
- OpenGates
- RAMDisk
- Startup Group

All others should be removed by selecting the plug-in and then clicking on the "Remove" button.

Attention: Make sure you don't remove one you need as removing a plug-in consists of deleting it from your disk and there is no undo possibility!

Your plug-in window should now look like the following one.
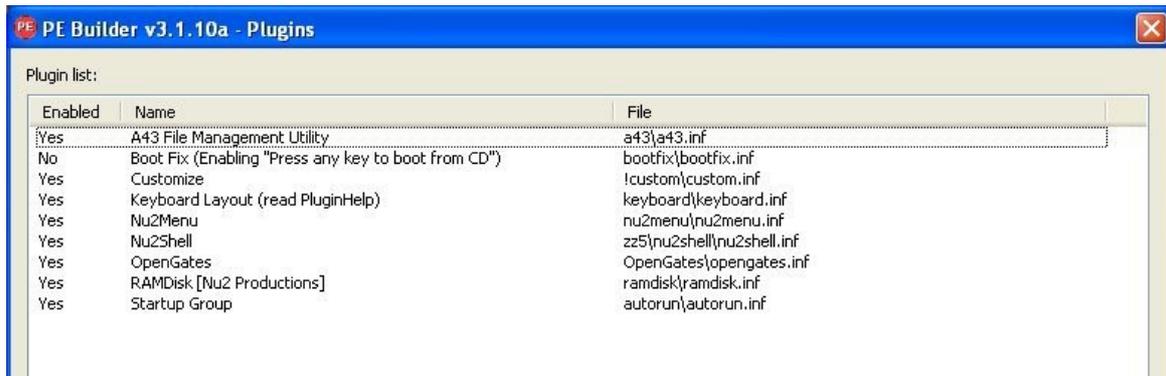
6.2. Enable boot fix

As you see above, the "Boot Fix" plug-in isn't enabled yet. As this one is pretty useful (without, VM's tend to always boot from the CD if it is inserted), we're going to enable it by selecting the plug-in and then pressing the "Enable/Disable" button. All listed plug-ins should be enabled now.

6.3. Configure keyboard layout

One last plug-in needs our attention. As you're probably going to use the OpenGates CD always on the same PC, or at least your keyboard layout won't change often (if ever), you should configure the OpenGates CD to use your keyboard layout. To do this, select the "Keyboard Layout" plug-in and click on "Edit". Notepad should be launched ready to edit the "keyboard.inf" file. Scrolling down you should see some lines beginning with "Remove the semicolon at the beginning of the following line to set the default keyboard to: *layout*" where *layout* is the keyboard layout. Just remove the semicolon following the line containing your layout, save the file and close Notepad. In the screen-shot below, I enabled the Swiss/German keyboard layout.
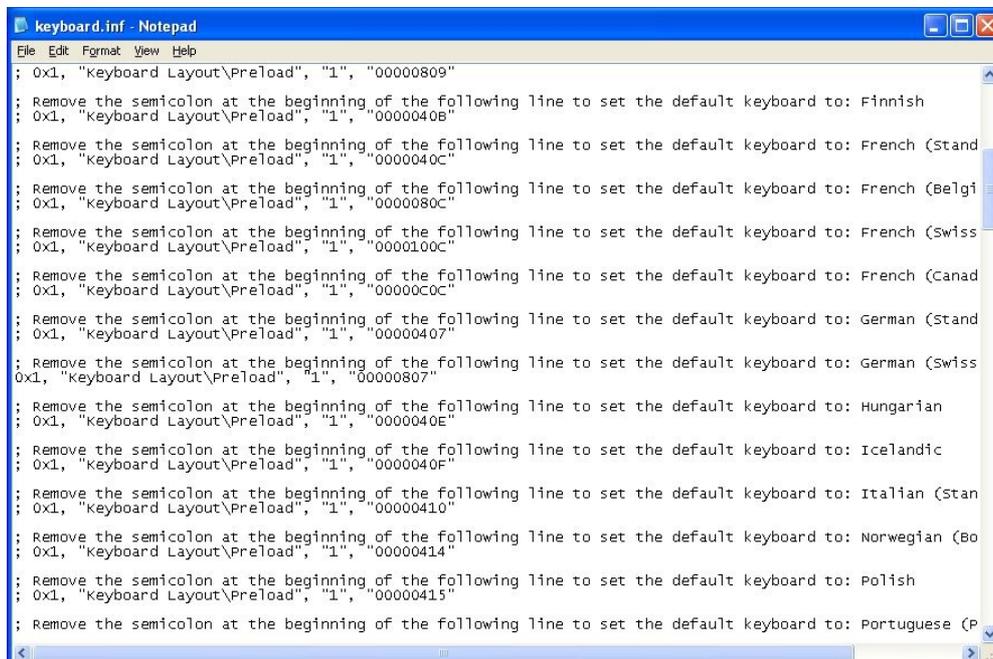
7. Build an ISO image

Once you configured BartPE and his plug-ins, building an ISO image is really easy. Close the plug-in window if it is still open and click on the "Build" button. A new window pops up displaying the build process. After the ISO has been built, it should look like the one below. If it displays an error message you probably did something wrong. In the worst case, reinstall BartPE and restart at the beginning of this HOWTO.

PE Builder v3.1.10a - Build

Operation: Finished
Error: 0   Warning: 0

```
Append file "c:\pebuilder3110a\plugin\zz5\nu2shell\nu2shell_nu2menu.xml" to "c:\pebuilder3110a\BartPE\Programs\Nu2Menu\nu2menu.xml"
Processing driver IDs
Checking for missing files
Build ISO image
Running external program
c:\pebuilder3110a\mkisofs.exe -iso-level 4 -volid "BartPE" -b bootsect.bin -no-emul-boot -boot-load-size 4 -hide bootsect.bin -hide boot.catalog -o "c:\Op
Warning: Creating ISO-9660:1999 (version 2) filesystem.
Warning: ISO-9660 filenames longer than 31 may cause buffer overflows in the OS.
Size of boot image is 4 sectors -> No emulation
  6.37% done, estimate finish Sat Sep 12 12:31:48 2009
 12.72% done, estimate finish Sat Sep 12 12:32:03 2009
 19.09% done, estimate finish Sat Sep 12 12:31:58 2009
 25.44% done, estimate finish Sat Sep 12 12:31:59 2009
 31.81% done, estimate finish Sat Sep 12 12:31:57 2009
 38.16% done, estimate finish Sat Sep 12 12:31:58 2009
 44.52% done, estimate finish Sat Sep 12 12:31:56 2009
 50.87% done, estimate finish Sat Sep 12 12:31:57 2009
 57.25% done, estimate finish Sat Sep 12 12:31:58 2009
 63.59% done, estimate finish Sat Sep 12 12:31:57 2009
 69.96% done, estimate finish Sat Sep 12 12:32:05 2009
 76.33% done, estimate finish Sat Sep 12 12:32:05 2009
 82.68% done, estimate finish Sat Sep 12 12:32:03 2009
 89.03% done, estimate finish Sat Sep 12 12:32:03 2009
 95.39% done, estimate finish Sat Sep 12 12:32:02 2009
Total translation table size: 2048
Total rockridge attributes bytes: 0
Total directory bytes: 106772
Path table size(bytes): 1320
78628 extents written (153 MB)
Building ISO image done
Building done...
Saved this log to: c:\pebuilder3110a\pebuilder.log
```

Close   Stop   <<   >>

8. **Rebuild an ISO image in case of a new OpenGates release**

Sadly, you'll have to rebuild a new ISO for every new OpenGates release. But you won't have to reconfigure BartPE's plug-ins again. Just replace the OpenGates folder in BartPE's "plugin" folder ("C:\pebuilder3110a\plugin\") with the new one you extracted from the downloaded ZIP file, make sure you have your Windows XP CD inserted, fire up BartPE, change the ISO name under "Media output" to reflect the new version number of OpenGates and rebuild the ISO by clicking on "Build".