CREATING THE USB DEVICE....

NOTE: Some of these steps require creating a new partition. Do the downloading, burning and editing on your personal computer. Do the rest of the steps on a machine you don't care about.

1) Download the latest systemrescuecd.
2) Burn it.
3) Boot it normally and then plug in a USB stick.
4) Run "sysresccd-usbstick dialog" to install it to the USB stick.
5) Reboot, remove the CD and boot off the USB stick to make sure it works.
6) Shutdown the machine.
7) Plug the USB stick into your editing computer.
8) Backup syslinux/syslinux.cfg and add some lines like this to the top-ish part of the original:

```
LABEL sysres_imager
  MENU LABEL 0) SYSRES Imager
  LINUX rescuecd
  INITRD initram.igz
  APPEND scandelay=5 setkmap=us backstore=off
  TEXT HELP
  Install a recovery partition.  Backup and restore hard drive partitions.
  ENDTEXT
```

8) Copy the syslinux folder to a folder named isolinux
9) Copy the install autorun0 and the MASSautorun2 scripts to the root of the usb stick. These scripts can be found at www.dminnich.com/files/
10) Boot off the USB stick on a machine with nothing on the drives and make sure the autorun works.
11) Create a new blank ext2 partition that is 3GB in size.

```
fdisk /dev/sda ; n; p;1; enter; +3G; w; q;
mkfs.ext2 /dev/sda1
```

12) Mount this new partition under /mnt/custom

```
mount /dev/sda1 /mnt/custom
```

13) Run sysresccd-custom extract
14) Copy the autorun0 file into place

```
cp /livemnt/boot/autorun0 /mnt/custom/customcd/files/root
chmod 777 /mnt/custom/customcd/files/root/autorun0
```

15) sysresccd-custom squashfs
16) Copy the sysrcd.dat file that you just created to another server

```
scp /mnt/custom/customcd/isoroot/sysrcd.dat root@server:/tmp/
```

17) Unmount the partitions.

```
cd /
umount /mnt/custom
```

18) Shutdown and plug the USB drive into your editing computer.
Replace the sysrcd.dat on the root of it with the one you copied to the server. Also, move the autorun0 file out of the root of the stick and to the local machine you are working on.
19) Boot the USB device on the machine you don't care about and make sure the autorun still shows up and works.
20) Shutdown. Hook up the USB stick to the editing machine. Copy autorun0 back to the root of the drive.

NOTE: Most of these commands are to add our autorun script to the live squasfs filesystem that the

machine will load when it is booted off the hard drive later.

USING THE CUSTOM IMAGING SOLUTION....

Single Purpose Cloning:
Sally has a machine that you want to back up. She doesn't have and doesn't need the recovery partition.

Backing up:
1) Boot the USB stick.
2) Create an image of her windows partition and store it on the network server.

Restoring:
1) Boot the USB stick.
2) Restore the image of her windows partition back to her windows partition.
NOTE: Hardware changes, especially those related to hard drive partition layout (like installing the recovery partition) may cause this not to work.

Creating a Master Image:
You just got 60 new machines and they all have the same hardware in them.

1) Choose a machine from the lot to work on. You must be willing to loose all of the data on it.
2) Boot the USB stick.
3) Install the recovery partition.
4) Shutdown and remove the USB stick.
5) Use GRUB and make sure the recovery partition boots, then shutdown.
6) Boot some windows install media.
7) Install windows to the big empty partition at the end of the drive. Create only 1 partition.
8) Configure Windows the way you like it.
9) Sysprep windows.
10) Restart and notice that GRUB is gone.
11) Boot the USB stick with the special “docache” option. Hit TAB on the SYSRES Imager line and add "docache" and hit enter.
12) Re-install grub.
13) Shutdown and remove the USB stick.
14) Boot the USB stick with the special “docache” option. Hit TAB on the SYSRES Imager line and add "docache" and hit enter.
15) Backup ALL partitions on the hard drive to the server.
16) Backup the MBR and partition table to the server.

Mass deploying the Master Image:
1) Plug the USB stick into the editing computer.
2) Rename autorun0 to NORMautorun0
3) Rename MASSautorun2 to autorun0
4) Open and configure the file and drive names in autorun0
5) Edit the syslinux.cfg file and add "docache" to the end of the APPEND scandelay=5 setkmap=us backstore=off line of SYSRES Imager entry
6) Save your changes and remove the USB stick
7) Boot the USB stick on a machine you want the image on

8) Answer Yes and let it start to do its thing.
9) At this point you can remove the USB stick and start on the next machine.

NOTES:
Before you use the USB stick again outside of this environment, you will need to undo your previous changes. IE: rename the autorun files and remove the docache option from the syslinux.cfg file on the USB Stick.

If the machine you want to mass deploy to already has the recovery partition installed, you will need to delete it in Windows before booting the USB stick to do the mass deployment.

Restoring Windows from the Master Image in the field:
PREREQ: If the machine doesn't have the recovery partition, boot the USB stick and install it. Then shutdown and remove the USB stick.

PREREQ-NOTES: When you install a recovery partition on a non-mass deployed machine, its size (ie local backing file) needs to be the same as the one you created when you made the master image. Otherwise, assuming the same hard drive in both machines, the space left over for the windows install would be different and if it happened to be smaller it would break the windows restore.
If this doesn't work, another option is to just do it the same way as you would a mass deploy above.

1) Boot the recovery partition.
2) Restore the windows partition from the server to the large partition on the machine.

CURRENT LIMITATIONS...

-Smaller partitions can be restored to bigger partitions but not the other way around. Expected behavior.
-Restoring a windows partition to a different numbered partition or on a different drive won't work. It will break windows boot loading application. Expected behavior.
-Sometimes the partition size may not be right after a restore. Expected behavior. If the drive is larger than it it showing this happened. Boot the USB stick, exit to Linux. startx. Use gparted to resize the NTFS partition.
-Sometimes windows may need to run check disk a couple times after a restore. Expected behavior.
-Sometimes windows won't properly boot after a restore. Not sure what causes this but booting the Windows 7 DVD and telling it to repair the startup system may fix it.
-You can't install the recovery partition on a machine that already has one. Expected behavior. It can't write to a drive it booted off of. Kill it in windows and boot off USB to re-install it.
-Restoring to a machine that has different hardware than the one you originally imaged most likely won't work. Hard drive partition layout changes are a big NO NO. If you happen to get past that, drivers will likely be an issue.
-You can't: backup the recovery partition, re-install grub, backup the MBR or backup the partition table when booted from the recovery partition. This is expected behavior because you can't do complicated things to the drive you booted off of. Instead, you have to boot from the USB stick with the "docache" option to do these things. You should rarely need to do these things so it shouldn't be a problem, but maybe I should make it more clear in the menus.
-You can't: create local images or restore from local images when you boot off the USB stick because the USB stick doesn't load the backstore. This shouldn't really be a problem, but I could make it more clear in the menus. NOTE: If for some reason you need to do it, just remove the backstore line from the USB boot menu option.
-This has only been tested with Windows 7. One off imaging of XP should work. Doing anything that

involves the recovery partition may work but hasn't been verified.

CURRENT BUGS...

-The IP address doesn't always show up at the start of the script even if the machine has one. This has to do with how long it takes the machine to get a DHCP pull vs how long it takes to run the script. In other words, it is a race condition.
-Answering how big you want the backing store to be with a negative number will break the install. I'll add more error checking later, for the time being, don't be stupid.

FUTURE PLANS...

-Make the menus more clear based on how the person booted.
-Figure out how to boot the custom systremrecue environment that I have on the USB stick over PXE.
-Add a quick install recovery parittion option. This will write a generic recovery image to the drive which is much faster than installing it from scratch.
-Fix the fixable bugs.