Fully Automatic Installation

What is FAI?
- System for unattended Linux installation
- Installs and configures the whole OS and all additional software
- Centralized configuration management and administration
- Scalable and flexible rollout method for Linux migration
- Linux deployment in only a few minutes

Why use FAI?
- Manual installation takes hours, FAI just minutes
- Recurring tasks are boring and lead to errors
- You need an infrastructure management
- You want to save time

The three steps of FAI
1 - Boot host
- Boot via network card (PXE), CD-ROM or floppy
- DHCP request, send MAC address
- Get IP address, netmask, gateway
- Send TFTP request for kernel image
- Get kernel + initrd and boot it

2 - Get configuration data
- Install server
- NFS, SVN, Git, HTTP
- Mount NFS root by install kernel
- Install client
- Debian mirror mounted by kernel
- Now a complete Linux OS is running without using local hard disks

3 - Run installation
- Partition local hard disks and create filesystems
- Install software using apt-get command
- Configure OS and additional software
- Save log files to install server, then reboot new system

Examples of installation times

<table>
<thead>
<tr>
<th>CPU + RAM</th>
<th>software</th>
<th>time</th>
</tr>
</thead>
<tbody>
<tr>
<td>E5-2690v2, 3.0 GHz, SSD</td>
<td>5.4 GB</td>
<td>7 min</td>
</tr>
<tr>
<td>Core i7, 3.2 GHz, 6GB</td>
<td>4.3 GB</td>
<td>7 min</td>
</tr>
<tr>
<td>Core i7, 3.2 GHz, 6GB</td>
<td>471 MB</td>
<td>77 s</td>
</tr>
<tr>
<td>Core2duo, 2 GHz, 2GB</td>
<td>4.3 GB</td>
<td>17 min</td>
</tr>
<tr>
<td>Core2duo, 2 GHz, 2GB</td>
<td>471 MB</td>
<td>165 s</td>
</tr>
<tr>
<td>Pentium 4, 3 GHz, 1GB</td>
<td>2200 MB</td>
<td>10 min</td>
</tr>
<tr>
<td>Pentium 4, 3 GHz, 1GB</td>
<td>1100 MB</td>
<td>6 min</td>
</tr>
<tr>
<td>Pentium 4, 3 GHz, 1GB</td>
<td>300 MB</td>
<td>105 s</td>
</tr>
<tr>
<td>Disk Image, Xfce desktop</td>
<td>1.1 GB</td>
<td>95 s</td>
</tr>
<tr>
<td>Disk Image, Ubuntu 16.04</td>
<td>3.3 GB</td>
<td>5 min</td>
</tr>
<tr>
<td>Disk Image</td>
<td>630 MB</td>
<td>42 s</td>
</tr>
</tbody>
</table>

Features
- Installs Debian, Ubuntu, Rocky, SuSE, ...
- Class concept supports heterogeneous configuration and hardware
- Advanced disaster recovery system
- Autodiscover of the install server
- Creates disk images for KVM, XEN, VirtualBox, VMware or cloud VMs
- Reproducible installation
- Automatic documentation in central repository
- Automated hardware inventory
- Full remote control via ssh during installation process
- FAI runs on i386, AMD64, PowerPC, ARM and IBM z10 mainframe
- Several GUI for FAI using GOsa, openQRM, DC²
- FAI.me build service

Available
- Homepage: https://fai-project.org
- Open source under GPL license
- Detailed documentation, mailing lists, IRC channel
- Official Debian packages, ISO images of demo CD
- Commercial support available

FAI at work
- The FAI monitor daemon
- Autodiscover of the FAI server
- Selecting a FAI profile from the menu

FAI users
- Anonymous, financial industry, 32,000 hosts
- LVM insurance, 10,000 hosts
- City of Munich, 16,000 hosts
- StayFriends, 700+ hosts
- Albert Einstein Institute, 3000+ hosts
- Zivit, 260 hosts on two IBM x20 EC mainframes
- Debian.org, 1200 bare metal and 800 KVM hosts
- XING AG, 300-400 hosts
- Opera Software, ~300 hosts
- Stanford University, 450 hosts
- MIT Computer science research lab, 200 hosts
- The Welcome Trust Sanger Institute, 540 hosts
- Mobile.de, ~600 hosts
- Thomas Krems AG, 500 per month
- Electricité de France (EDF), 1500 hosts
- ETH Zürich, systems group, ~300 hosts
- Trinity Centre for High Performance Computing, 356 opterons, 80 years
- For more see https://fai-project.org/reports/