**Fully Automatic Installation**

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### 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

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### The three steps of FAI

1. **Boot host**
   - Boot via network card (PXE), CD-ROM or floppy
   - Install server install client
   - Now a complete Linux OS is running without using local hard disks

2. **Get configuration data**
   - Install server install client
   - 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

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

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### Features

- Installs Debian GNU/Linux, Ubuntu, CentOS, SuSe, Scientific Linux, ...
- Class concept supports heterogeneous configuration and hardware
- Update running system without installation (e.g. daily maintenance)
- Central configuration repository for all install clients
- Advanced disaster recovery system
- Autodiscover of the install server
- Creation of disk images for KVM, Xen, VirtualBox, VMware or cloud hosts
- Reproducible installation
- Automatic documentation in central repository
- Automated hardware inventory
- Hooks can extend or customize the normal behavior
- Full remote control via ssh during installation process
- FAI runs on i386, AMD64, PowerPC, SPARC and IBM z10 mainframe
- Fast automatic installation for Beowulf clusters
- Several GUI for FAI using GOsa, openQRM, DC2

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### Availability

- Homepage: [http://fai-project.org](http://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

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### Examples of FAI installations

- **The Centibots Project**
  - 100 autonomous robots funded by the DARPA
  - SRI International Artificial Intelligence Center, USA

- **The MERLIN cluster**
  - 180 Dual AMD MP2200
  - 2 GB RAM per node
  - Albert Einstein Institute, Golm, Germany

- **IITAC cluster**, top500.org
  - 356 opterons, 80 xeon
  - Trinity Centre for High Performance Computing, University of Dublin, Ireland

- **Computer Science lab**
  - 360 workstations, 127 servers
  - University of West Bohemia, Czech Republic

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### Examples of installation times

<table>
<thead>
<tr>
<th>CPU + RAM</th>
<th>software</th>
<th>time</th>
</tr>
</thead>
<tbody>
<tr>
<td>E5-2600v2, 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>77 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>

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### FAI users

- Anonymous, financial industry, 32,000 hosts
- LVM insurance, 10,000 hosts
- City of Munich, 16,000
- StayFriends, 700-+ hosts
- Albert Einstein Institute, 1725 hosts
- Zivit, 260 hosts on two IBM z10 EC mainframes
- Archive.org, 200-+ 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 Krenn AG, 500 per month
- Electricité de France (EDF), 1500 hosts
- ETH Zurich, systems group, ~300 hosts
- Trinity Centre for High Performance Computing, 356 opterons, 80 xeon
- For more see [http://fai-project.org/reports/](http://fai-project.org/reports/)

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**Plan your installation, and FAI installs your plan.**