

Integrating Intel® Software Development Tool Suite Components with Moblin* Image Creator

This article describes how to install components of the Intel(R) Software Development Tool Suites for Intel(R) Atom(TM) Processor with the Moblin* Image Creator.

This allows to use the Intel(R) C++ Compiler and the Intel(R) Integrated Performance Primitives inside the Moblin* Image Creator's protected jailroot environment.

It also allows to make sure the Moblin* target image created contains the idbserver, the Intel(R) Application Debugger remote debug server, as well as a copy of the Intel(R) VTune(TM) Performance Analyzer Sampling Collector (SEP) installation for the Intel(R) Atom(TM) Processor.

The Intel(R) Software Development Tool Suites 2.0 for Intel(R) Atom(TM) Processor offers two distinct options for tight integration of Intel's development tools with Moblin*'s development and testing environment. You can download an existing Moblin* image from <http://www.moblin.org> for development and testing on this image and install target specific components of the Intel(R) Application Software Development Tool Suite into it. Alternatively you can also download and install the Moblin Image Creator 2 from <http://www.moblin.org> and integrate development tool suite components into it's jailroot environment as well as prepare the target image created by Moblin Image Creator to contain the Intel(R) VTune(TM) Performance Analyzer Sampling Collector (SEP) and Intel(R) Application Debugger debug agent (idbserver) for testing and performance tuning.

Whether you intend to do most of your development on a live Moblin* image running inside a KVM* virtual machine ore whether you intend to do your development in a protected jailroot/chroot environment, there are tools components that should be installed on your development host system and should be independent of your Moblin* based Intel(R) Atom(TM) Processor target.

It is recommended to register for the Intel(R) Application Software Development Tool Suite for Intel(R) Atom(TM) Processor or the Intel(R) Embedded Software Development Tool Suite for Intel(R) Atom(TM) Processor at <http://software.intel.com/en-us/intel-compilers/> and download it at <https://registrationcenter.intel.com>. It is also recommended to install at least the Intel(R) VTune(TM) Performance Analyzer and the Intel(R) Debugger following the steps outlined in the product installation guide [Install_All.htm](#). This will take care of installing the host components to take advantage of the Intel(R) Application Software Development Tool Suite's performance analysis, tuning and debug capabilities.

To install the Intel(R) C++ Compiler and the Intel(R) Integrated Performance Primitives into the Moblin* Image Creator jailroot environment and prepare the Moblin* Image Creator produced target image to also include the Intel(R) Application Debugger debug agent (Idbserver) and the Intel(R) VTune(TM) Analyzer Sampling Collector (SEP) please follow the steps below:

1. Go to <http://www.moblin.org> and download Moblin* Image Creator 2. Detailed Moblin* Image Creator documentation can be found at <http://moblin.org/documentation/moblin-image-creator-2/using-moblin-image-creator> and the Moblin* Image Creator itself can be downloaded at <http://git.moblin.org/cgi/moblin-image-creator-2> .
2. Follow the instructions you find at moblin.org for installing the Moblin* Image Creator.
3. Go to <http://software.intel.com/en-us/articles/moblin-integration-software-development-tool-suite-atom/> and download the two scripts **netbook-core-developer_JAILROOT.ks** and **netbook-core-developer_TARGET.ks** .
4. To create a KVM* image or a Live-CD of the target Moblin* system, please use netbook-core-developer_TARGET.ks:

```
> moblin-image-creator -c <path_to_ks>/netbook-core-developer_TARGET.ks -f raw --cache=/tmp/mycache
```

The image created will contain The Intel(R) Application Debugger Idserver and the Intel(R) VTune(TM) Analyzer Sampling Collector for target system located as a tarball in the /tmp directory. TheParameter '-f raw' of the moblin-image-creator command instructs the Moblin* Image Creator to create an image which can be loaded into a KVM* virtual machine. For more information on Moblin* Image Creator usage please consult moblin.org.

5. To create an image with the Intel(R) C++ Compiler & the Intel(R) Integrated Performanced Primitives that you can then use to do builds in a protected jailroot/chroot environment before creating the target image please use netbook-core-developer_JAILROOT.ks:

```
> moblin-image-creator -c <path_to_ks>/netbook-core-developer_JAILROOT.ks -f loop --cache=/tmp/mycache
```

The image will contain the Intel(R) C++ Compiler and the Intel(R) IPP at /opt/intel/Compiler. The command parameter '-f loop' of moblin-image-creator tells it to create a loop image. You can mount this image and then chroot into it for your protected builds using the following commands:

```
> mount -o loop moblin-netbook-core-developer_JAIROOT.img  
/mnt/loop  
> chroot /mnt/loop su
```

6. To additionally install the Intel(R) VTune(TM) Analyzer Sampling Collector (SEP) you would download it directly from http://downloads.moblinzone.com/development-tool-suite-2/rpm/vtune91_target.tar.gz and unpack it and install it in the Moblin* environment. Please be advised that using SEP is only supported on real Intel(R) Atom(TM) Processor based hardware and not on OS images running under KVM*.

Advanced

If you would like to modify the kickstart script templates provided with the Moblin* Image Creator yourself, below is a short outline of the changes we apply to the template scripts provided with the Moblin* Image Creator to enable our integration. The example kickstart scripts for the Moblin* Image Creator can be found in the /usr/share/mic2 after you installed it.

To enable integration of the Intel(R) Software Development Tool Suite you would do the following:

1. add a repository entry for the Intel(R) Software Development Tool Suite to the header of ks file:

```
> repo --name=intel-tools --baseurl=http://downloads.moblinzone.com/development-tool-suite-2
```

2. add packages which you want to install into Moblin image in %packages section of the ks file.

There are 4 groups of Intel packages which you may want to install:

```
@Compiler  
@IPP  
@Application Debugger  
@Server agent for Application Debugger
```

Each of these groups contains a set of rpm files related to the corresponding products.

```
@Compiler contains the Intel(R) C++ Compiler for applications running on IA-32  
@IPP contains the Intel(R) IPP for Intel(R) Atom(TM) Processor  
@Application Debuggers contains the Intel(R) Application Debugger 2.0 for Intel(R) Atom(TM) Processor  
@Server agent for Application Debugger contains the Intel(R) Debugger Remote Server (idbserver)
```

Each group of packages contains the information about its dependencies which will be automatically resolved during the installation.

Host Install

It is recommended to register for the Intel(R) Application Software Development Tool Suite for Intel(R) Atom(TM) Processor or the Intel(R) Embedded Software Development Tool Suite for Intel(R) Atom(TM) Processor at <http://software.intel.com/en-us/intel-compilers/> and download it at <https://registrationcenter.intel.com>. It is also recommended to install at least the Intel(R) VTune(TM) Performance Analyzer and the Intel(R) Debugger following the steps outlined in the product installation guide [Install_All.htm](#). This will take care of installing the host components to take advantage of the Intel(R) Debugger and Intel(R) VTune(TM) Performance Analyzers debugging and performance optimization tuning capabilities.

If you wanted to you could however also do the host component install using the kickstart script approach of Moblin Image Creator 2. This is however not the recommended approach. To the any kickstart script of your choice you would add the '%post --nochroot' section shown below for copying of the Intel(R) VTune(TM) Performance Analyzer and the Application Debugger to the host machine and VTune sampling collector for embedded systems (SEP-embedded) to the target image.

```
%post --nochroot

# Copying vtune_for_targets to the target image (set your proxy here if needed)
echo "Downloading required additional packages..."
export http_proxy=http://proxy.jf.intel.com:911
test -s /tmp/vtune91_target.tar.gz || wget
http://downloads.moblinzone.com/development-tool-suite-
2/rpm/vtune91_target.tar.gz -O /tmp/vtune91_target.tar.gz
cp /tmp/vtune91_target.tar.gz $INSTALL_ROOT/tmp/vtune91_target.tar.gz

# copying VTune for host to the user's host machine
test -d /tmp/intel-tools || mkdir -p /tmp/intel-tools
test -s /tmp/intel-tools/l_vt_pu_9.1.021.tar.gz || wget
http://downloads.moblinzone.com/development-tool-suite-
2/l_vt_pu_9.1.021.tar.gz -O /tmp/intel-tools/l_vt_pu_9.1.021.tar.gz

# copying Application Debugger to the user's host machine
test -d /tmp/intel-tools/idb || mkdir -p /tmp/intel-tools/idb
wget http://downloads.moblinzone.com/development-tool-suite-2/rpm/intel-
mid_idb20006-2.0.006-001.i486.rpm -O /tmp/intel-tools/idb/intel-mid_idb20006-
2.0.006-001.i486.rpm
wget http://downloads.moblinzone.com/development-tool-suite-2/rpm/intel-
mid_idb-kernel20006-2.0.006-001.i486.rpm -O /tmp/intel-tools/idb/intel-
mid_idb-kernel20006-2.0.006-001.i486.rpm
wget http://downloads.moblinzone.com/development-tool-suite-2/rpm/intel-
mid_idb-eclipse20006-2.0.006-001.i486.rpm -O /tmp/intel-tools/idb/intel-
mid_idb-eclipse20006-2.0.006-001.i486.rpm

# Installing App Debugger (if needed, please remove the comments)
```

```

# TODO: write some lines, so that add installation for non-rpm systems (like
Ubuntu 8.10)
#echo "Installing an Application Debugger..."
#type -P rpm &>/dev/null
#if [ $? -eq 0 ]; then
# rpm -U --force --nodeps /tmp/intel-tools/idb/intel-mid_idb20006-2.0.006-
001.i486.rpm
# rpm -U --force --nodeps /tmp/intel-tools/idb/intel-mid_idb-kernel20006-
2.0.006-001.i486.rpm
# rpm -U --force --nodeps /tmp/intel-tools/idb/intel-mid_idb-eclipse20006-
2.0.006-001.i486.rpm
#fi

%end

```

Again though - the recommended method to installing the host components of the Intel(R) Software Development Tool Suites for Intel(R) Atom(TM) Processor is to simply download the installation tarball, run the install.sh install script as outlined in Install_All.htm and follow it's instructions.

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NOTE: In addition to the information above you may find useful mini how-to document of MIC usage:

<http://moblin.org/documentation/moblin-image-creator-2/using-moblin-image-creator>

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