# McAllen Software Build and Deployment Instructions

Intel
McAllen

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# 1. Introduction

## 1.1 Purpose

This document is meant to serve as a guide to installing the Intel McAllen Software.

## 1.2 Scope

This document pertains to the McAllen Linux Software Version 1.1.6, the McAllen Windows Software Version 1.0.0.2, and the McAllen Shimmer Software Revision 327.

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# 2. Build

## 2.1 Build Prerequisites

### 2.1.1 Linux Software and Installer

The McAllen Linux Software requires the following to be built:

1. Red Hat Enterprise Linux 5.3/5.4 (32-bit or 64-bit, Desktop or Server) or Ubuntu Server 9.04 (32-bit or 64-bit)
2. GNU C Library (glibc) version 2.5 or later (using libpthreads and librt).
3. BlueZ headers and libraries, version 3.70 or later.
4. MySQL Connector/C 6.0 (headers/libraries).
5. GNU Make.
6. GCC.

The McAllen Linux Installer requires the following to create a self-extracting installer script:

1. GNU Coreutils version 5.97 or later.
2. McAllen Linux Software Prerequisite Archive.
3. McAllen Linux Software Executable.

### 2.1.2 Windows Software and Installer

The McAllen Windows Software requires the following prerequisites to build:

1. Microsoft Visual Studio 2008 (.NET Framework 3.5 included).
2. WPFToolkit.dll (from Microsoft CodePlex).
3. WPF.Themes.dll (from Microsoft CodePlex).

The Installer is a Microsoft Setup and Deployment Project which is contained inside the Windows Software project file. The condition that must be met for the Installer package to build is the ability to build the Software.

### 2.1.3 Shimmer Software

The McAllen Shimmer Software requires the following prerequisites to build:

1. TinyOS version 1.x and all TinyOS dependencies.
2. GNU Make.
3. GCC.

## 2.2 Building the McAllen Linux Software

1. Login to your Linux system and open a terminal / shell session.
2. Change directory to the directory containing the source code and Makefile.
3. Verify that all library (-L) and include (-I) paths inside the Makefile point to the correct locations for the particular system you are building on.
4. Run the Makefile by typing `make` at the terminal and look for any error messages. There should be no warnings or error messages during compilation or linking. If there are any errors, please ensure that you have the proper libraries installed in the correct locations.
5. The executable, `start_acquire_data` , should appear in the current working directory.

## 2.3 Building the McAllen Windows Software

1. Open Microsoft Visual Studio 2008
2. Click File -> Open -> Project/Solution
3. Browse to the location of the Visual Studio Solution File, McAllenGUI.sln and click Open.
4. Change the Solution Configuration box to the option "Release".
5. Select the Solution "McAllenGUI" in the Solution Explorer window.
6. Click Build -> Build Solution or press F6 to build the software (and installer).
7. The executable for the application will appear in the project's output folder (e.g. ".\McAllenGUI\McAllenGUI\bin\release\").

## 2.4 Building the McAllen Shimmer Software

1. Install TinyOS 1.x. A guide to this can be found at http://www.eecs.harvard.edu/~konrad/projects/shimmer/SHIMMER-GettingStartedGuide.html.
2. Create a directory called 'McAllen' under the path: "`$TOSROOT/contrib/handhelds/apps/`"
3. Note that the TOSROOT environment variable should be set to the root directory of the TinyOS installation if installation was successful (e.g. /home/user/tinyos-1.x/).
4. Copy the Shimmer Software source files to the McAllen directory created in the previous step.
5. Run the command "`make shimmer`" to build the software.

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# 3. Deployment

## 3.1 Creating the installer script for the McAllen Linux Software

1. Create a directory called `installer` anywhere you have permission to write (e.g. home folder).
2. Change directory to the `installer` folder.
3. Copy the supplied archive, `McAllenPrerequisites.tar.gz` to the `installer` folder.
4. Extract the archive `McAllenPrerequisites.tar.gz` with the following command: "`tar –xvf McAllenPrerequisites.tar.gz ./`". This will create a sub-directory called `payload`, which will contain the contents of the self-extracting installer script.
5. Copy a built application executable of your choice to the `application` sub-directory which is one level below the `payload` directory.
6. Return to the `installer` folder and run the shell script `builder.sh`. This script will create the self-extracting installer script named `McAllenSetup.sh` which can now be distributed.

## 3.2 Creating the MSI installer for the McAllen Windows Software

1. Open Microsoft Visual Studio 2008
2. Click File -> Open -> Project/Solution
3. Browse to the location of the Visual Studio Solution File, McAllenGUI.sln and click Open.
4. Change the Solution Configuration box to the option "Release".
5. Select the Project "McAllenGUI" in the Solution Explorer window.
6. Right-click the Project "McAllenGUI" and click Build.
7. Select the Project "McAllen Setup" in the Solution Explorer window.
8. Right-click the Project "McAllen Setup" and click Build.
9. The MSI installer, McAllen Setup.msi, will appear in the project's output folder (e.g. ".\McAllenGUI\McAllenSetup\release\").

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## 3.3 Programming Shimmer Devices

1. Plug a Shimmer programming "cradle" into a machine that has TinyOS 1.x installed and the Shimmer software in the directory described in section 2.4 of this document.
2. Ensure the Shimmer programming "cradle" is detected in your system by verifying that an entry under the `dev` folder exists for it (e.g. `/dev/ttyUSB0`). It should be called `ttyUSBx`, with x being a number signifying the number of USB tty/serial devices detected.
3. Go to the "`$TOSROOT/contrib/handhelds/apps/McAllen`" folder and run the following command: "`make shimmer install bsl,/dev/ttyUSBx`". Replace the `/dev/ttyUSBx` portion with the correct name of your device found in step 2. This will build the software and program the Shimmer.


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## 4. Revision History

| REVISION | DATE | NAME | DESCRIPTION OF CHANGE |
|---|---|---|---|
| 1.0 | 9/29/09 | | Released Revision |
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