Instructions for building LibMailCore2 for Android API-16

No.	Description	Command / Instruction
1	Download libmailcore2	git clone https://github.com/MailCore/MailCore2.git
2	Download Android NDK	https://developer.android.com/ndk/downloads/index.html
3	Download Android SDK	https://developer.android.com/sdk/index.html - setup through Android Stu
4	Install AutoConf, AutoMake, Libtool	curl -OL http://ftpmirror.gnu.org/autoconf/autoconf-2.69.tar.gz tar -xzf autoconf-2.69.tar.gz cd autoconf-2.69 ./configure && make && sudo make install curl -OL http://ftpmirror.gnu.org/automake/automake-1.14.tar.gz tar -xzf automake-1.14.tar.gz cd automake-1.14 ./configure && make && sudo make install curl -OL http://ftpmirror.gnu.org/libtool/libtool-2.4.2.tar.gz tar -xzf libtool-2.4.2.tar.gz cd libtool-2.4.2 ./configure && make && sudo make install
5	Comment out <cwcchar> in string in Android NDK	PATH_TO_NDK/sources/cxx-stl/llvm-libc++/libcxx/include/string search for #include <cwchar> and comment out i.e. //#include <cwchar>
	Third Party Library Build	
6	Download libxml2	https://github.com/dinhviethoa/libxml2
7	Edit build-android/build.sh and setup for android-16 (change required in red)	#!/bin/sh build_version=1 ANDROID_PLATFORM=android-**16** icu4c_build_version=1 archs="armeabi armeabi-v7a x86 **~~x86_64~~**" package_name=libxml2-android
8	Comment out HAVE_RAND_R in build-android/config.h (change required in red)	/* Define to 1 if you have the `rand_r' function. */ **//**#define HAVE_RAND_R 1

9	Build libxml2 according to build-android/README.md	
10	Download libetpan	https://github.com/dinhviethoa/libetpan
11	Edit build-android/build.sh and setup for android-16 (change required in red)	#!/bin/sh build_version=1 ANDROID_PLATFORM=android-**16** openssl_build_version=1 cyrus_sasl_build_version=1 archs="armeabi armeabi-v7a x86 **~~x86_64~~**" package_name=libetpan-android
12	Edit build-android/dependencies/cyrus-sasl/build.sh and setup for android-16 (change required in red)	#!/bin/sh version=2.1.25 build_version=1 ARCHIVE=cyrus-sasl-$version ANDROID_PLATFORM=android-**16** openssl_build_version=1 archs="armeabi armeabi-v7a x86 **~~x86_64~~**" package_name=cyrus-sasl-android

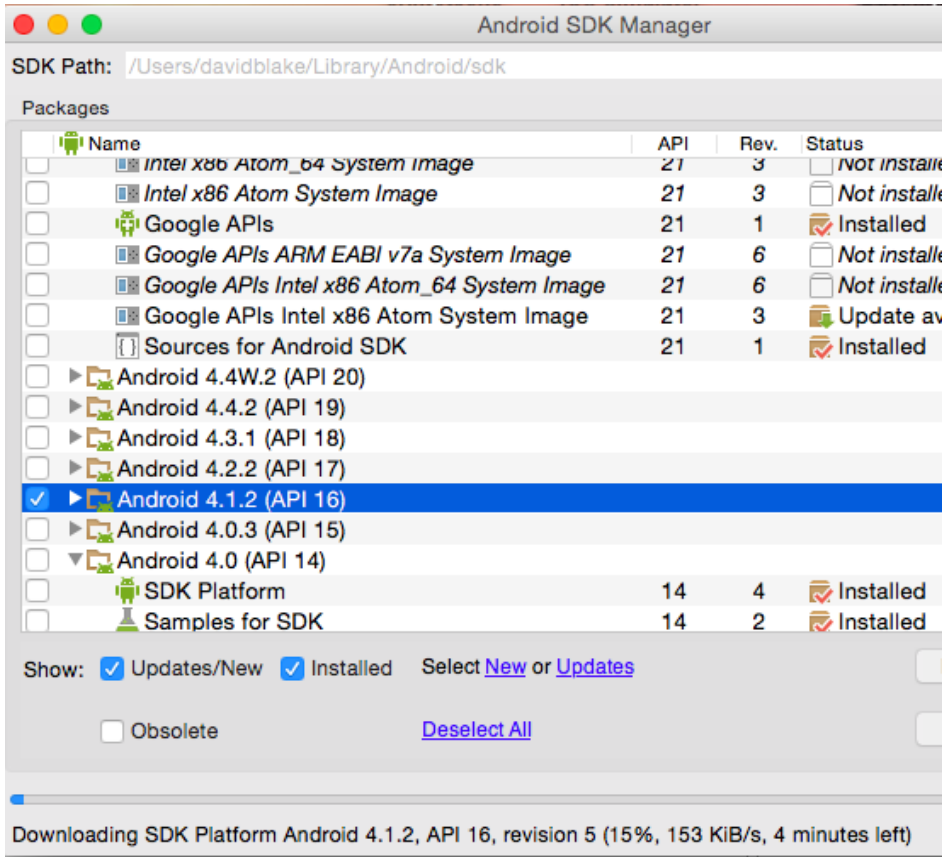
13	Edit build-android/dependencies/ openssl/build.sh and setup for android-16 (change required in red)	#!/bin/sh
		
		build_version=1
		version=1.0.1j
		android_platform=android-**16**
		package_name=openssl-android
		
		Comment out build_x86_64 near end of build.sh
		i.e.
		# start building.
		current_dir="`pwd`"
		build_armeabi
		build_armeabi_v7a
		build_x86
		#build_x86_64

14	Build libetpan according to build-android/README.md	
15	Download ctemplate	https://github.com/dinhviethoa/ctemplate

16	Edit build-android/build.sh and setup for android-16 (change required in red)	#!/bin/sh build_version=1 ANDROID_PLATFORM=android-**16** archs="armeabi armeabi-v7a x86 ~~**x86_64**~~" package_name=ctemplate-android
17	Build ctemplate according to build-android/README.md	
18	Download tidy-html5	https://github.com/dinhviethoa/tidy-html5
19	Edit build-android/build.sh and setup for android-16 (change required in red)	#!/bin/sh build_version=1 ANDROID_PLATFORM=android-**16** archs="armeabi armeabi-v7a x86 ~~**x86_64**~~" package_name=tidy-html5-android
20	Build tidy-html5 according to build-android/README.md	
end Third Party Library Build		

21	Remove code in function void MXRecordResolverOperation::main() in MCMXRecordResolverOperation.cpp in src/core/provider	**#if 0**
		mMXRecords = new Array();
		unsigned char response[NS_PACKETSZ];
		ns_msg handle;
		ns_rr rr;
		int len;
		char dispbuf[4096];
		
		if (((len = res_search(MCUTF8(mHostname), ns_c_in, ns_t_mx, response, sizeof(response))) >=
		(ns_initparse(response, len, &handle) >= 0) and
		(ns_msg_count(handle, ns_s_an) >= 0)) {
		
		for (int ns_index = 0; ns_index < len; ns_index++) {
		if (ns_parserr(&handle, ns_s_an, ns_index, &rr)) {
		/* WARN: ns_parserr failed */
		continue;
		}
		ns_sprintrr (&handle, &rr, NULL, NULL, dispbuf, sizeof (dispbuf));
		if (ns_rr_class(rr) == ns_c_in and ns_rr_type(rr) == ns_t_mx) {
		char mxname[4096];
		dn_expand(ns_msg_base(handle), ns_msg_base(handle) + ns_msg_size(handle), ns_rr_
		mxname, sizeof(mxname));
		String * str = String::stringWithUTF8Characters(mxname);
		mMXRecords->addObject(str);
		}
		}
		}
		#endif

22	Make additions in red to CMakeLists.txt (in root of MailCore2) Add just before # detect ctemplate Note - this only required as build fails due to these includes not being found - further work required rather than this hack.	set(CTEMPLATE_INCLUDE_DIR ${CMAKE_CURRENT_SOURCE_DIR}/third-party/ctemplate-and set(CTEMPLATE_LIBRARY ${CMAKE_CURRENT_SOURCE_DIR}/third-party/ctemplate-android-1 set(LIBETPAN_INCLUDE_DIR ${CMAKE_CURRENT_SOURCE_DIR}/third-party/libetpan-android- set(LIBETPAN_LIBRARY ${CMAKE_CURRENT_SOURCE_DIR}/third-party/libetpan-android-1/libs set(LIBXML_INCLUDE_DIR ${CMAKE_CURRENT_SOURCE_DIR}/third-party/libxml2-android-1/in set(LIBXML_LIBRARY ${CMAKE_CURRENT_SOURCE_DIR}/third-party/libxml2-android-1/libs) # detect ctemplate

23	Download Android 4.1.2 (API 16) in Android Studio SDK Manager	
24	Edit build-android/build.sh and setup for android-16 (change required in red)	#!/bin/sh build_version=1 ANDROID_PLATFORM=android-**16** archs="armeabi armeabi-v7a x86 ~~x86_64~~" package_name=mailcore2-android ctemplate_build_version=1 cyrus_sasl_build_version=1 icu4c_build_version=1 libetpan_build_version=1 libxml2_build_version=1 uchardet_build_version=1 tidy_html5_build_version=1 openssl_build_version=1

25	Edit build-android/AndroidManifest.xml and setup for android-16 (change required in red)	<?xml version="1.0" encoding="utf-8"?> <manifest xmlns:android="http://schemas.android.com/apk/res/android" package="com.libmailcore.library" android:versionCode="1" android:versionName="0.5" > <uses-sdk android:minSdkVersion="**16**" android:targetSdkVersion="**16**" /> <uses-permission android:name="android.permission.INTERNET" /> </manifest>
26	Edit build-android/jni/Android.mk (Changes in red)	include $(CLEAR_VARS) LOCAL_MODULE := sasl2 LOCAL_SRC_FILES := $(CYRUS_SASL_PATH)/libs/$(TARGET_ARCH_ABI)/libsasl2.a include $(PREBUILT_STATIC_LIBRARY) **include $(CLEAR_VARS)** **LOCAL_MODULE := c++_static** **LOCAL_SRC_FILES := $(ANDROID_NDK)/sources/cxx-stl/llvm-libc++/libs/$(TARGET_ARCH_** **include $(PREBUILT_STATIC_LIBRARY)** include $(CLEAR_VARS) LOCAL_MODULE := MailCore LOCAL_C_INCLUDES := $(includes) LOCAL_SRC_FILES := \ $(jni_src_files) \ $(core_src_files) $(abstract_src_files) $(imap_src_files) $(nntp_src_files) \ $(pop_src_files) $(provider_src_files) $(renderer_src_files) $(rfc822_src_files) \ $(security_src_files) $(smtp_src_files) $(zip_src_files) $(minizip_src_files) \ $(async_imap_src_files) $(async_nntp_src_files) $(async_pop_src_files) $(async_smtp_ LOCAL_CPPFLAGS := -frtti LOCAL_CFLAGS := -DNOCRYPT #LOCAL_LDLIBS := -lz -llog \ # -lc++_shared -L$(ANDROID_NDK)/sources/cxx-stl/llvm-libc++/libs/$(TARGET_ARCH_A #LOCAL_STATIC_LIBRARIES := etpan sasl2 ssl crypto icu4c xml2 tidy ctemplate **LOCAL_LDLIBS := -lz -llog** **LOCAL_STATIC_LIBRARIES := etpan sasl2 ssl crypto icu4c xml2 tidy ctemplate c++_static** include $(BUILD_SHARED_LIBRARY)

27	Edit build-android/build.sh (changes in red)	function build {
		  rm -rf "$current_dir/obj"
		
		  cd "$current_dir/jni"
		  $ANDROID_NDK/ndk-build TARGET_PLATFORM=$ANDROID_PLATFORM TARGET_ARCH_A
		\
		  NDK_TOOLCHAIN_VERSION=clang3.6 \
		  CTEMPLATE_PATH=$current_dir/third-party/ctemplate-android-1 \
		  ICU4C_PATH=$current_dir/third-party/icu4c-android-1 \
		  LIBETPAN_PATH=$current_dir/third-party/libetpan-android-1 \
		  LIBXML2_PATH=$current_dir/third-party/libxml2-android-1 \
		  TIDY_HTML5_PATH=$current_dir/third-party/tidy-html5-android-1 \
		  OPENSSL_PATH=$current_dir/third-party/openssl-android-1 \
		  CYRUS_SASL_PATH=$current_dir/third-party/cyrus-sasl-android-1
		
		  mkdir -p "$current_dir/bin/jni/$TARGET_ARCH_ABI"
		  cp "$current_dir/libs/$TARGET_ARCH_ABI/libMailCore.so" "$current_dir/bin/jni/$TARGET_ARCH
		  #cp "$ANDROID_NDK/sources/cxx-stl/llvm-libc++/libs/$TARGET_ARCH_ABI/libc++_shared.so"
		$TARGET_ARCH_ABI"
		  rm -rf "$current_dir/obj"
		  rm -rf "$current_dir/libs"
		}

28	Build MailCore2 according to build-android/README.md (Pass 1)	Set Android NDK and SDK accordingly as per README
29	After initial build copy all 3rd Party Library Files built earlier into build-android/third-party and unzip (delete applicable folders first) *no copying required for icu4c-android*	ctemplate-android-1.zip libetpan-android-1.zip cyrus-sasl-android-1.zip (found in libetpan\dependencies\cyrus-sasl) openssl-android-1.zip (found in libetpan\dependencies\openssl) libxml2-android-1.zip tidy-html5-android.zip
30	Build MailCore2 (Pass 2)	./build.sh mailcore2-android-1.aar should now have been built in build-android