OpenH264 build and update for wme

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1. Build and update

1.1 Basic flowchart

Unify option name for skip build and download from ftp server is:

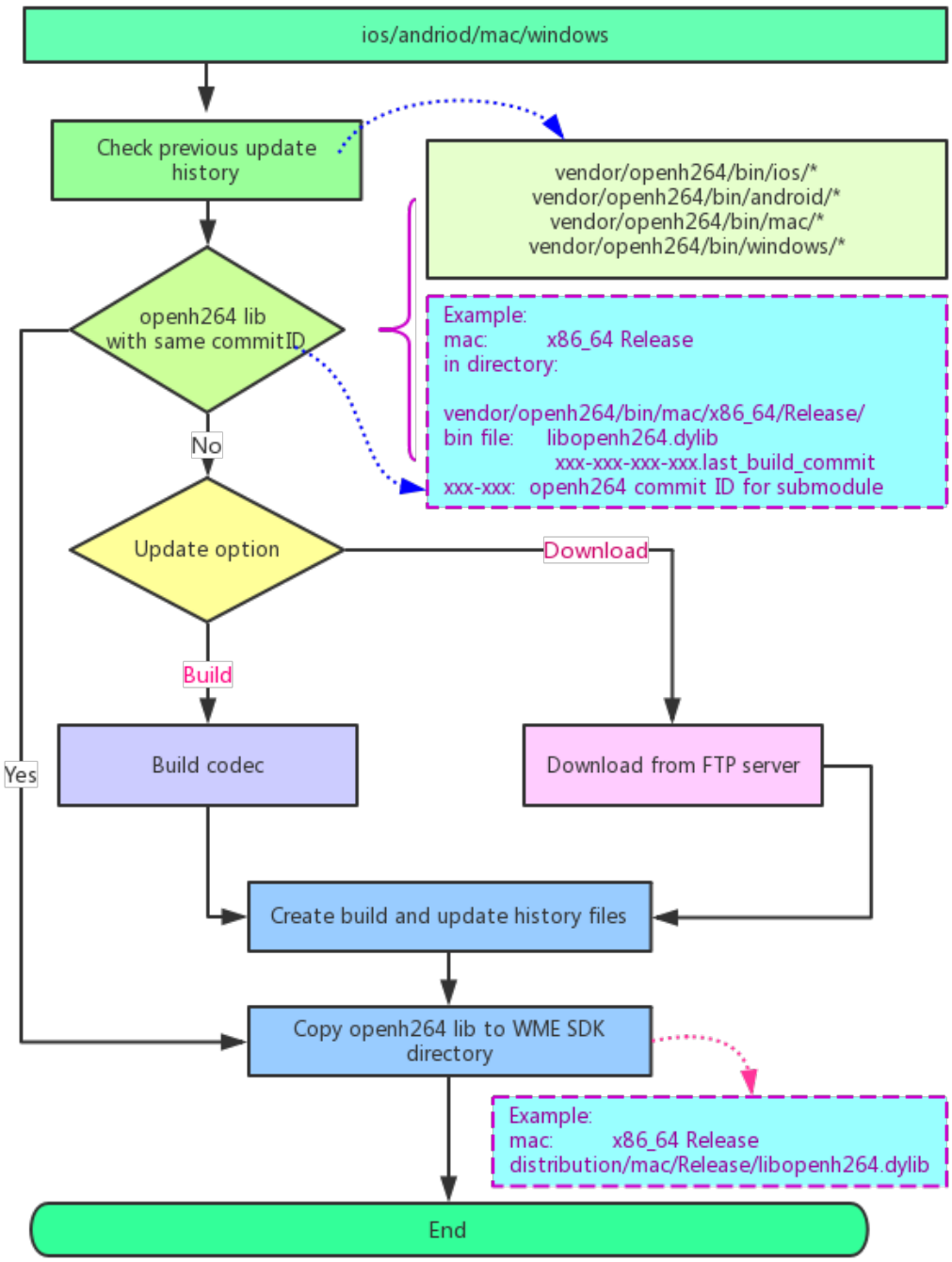
openh264-skip-build

Example:

for mac build, go to wme/build/mac and run:

sh build.sh openh264-skip-build

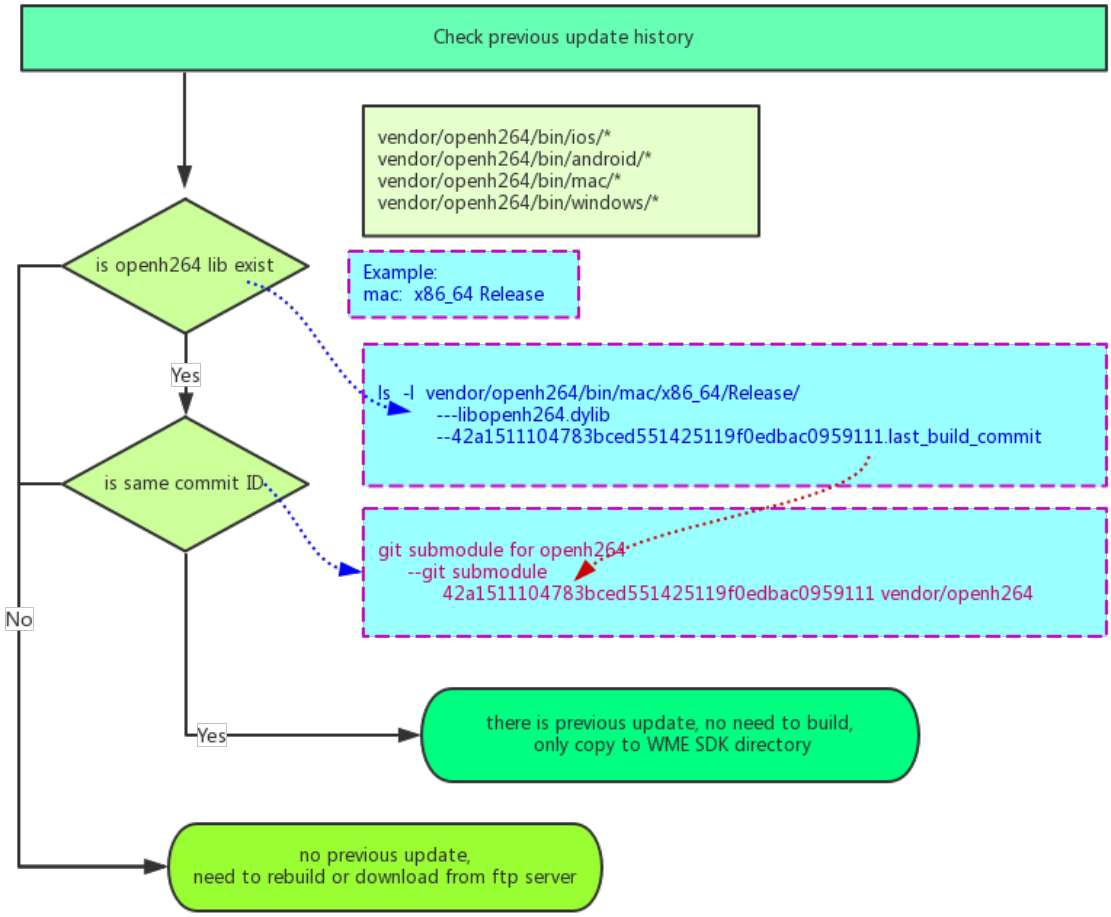
script will skip openh264 build and download from ftp server.



1.2 Script for build and update

- build/ios/buildAndupdate_openh264.sh
- build/mac/buildAndupdate_openh264.sh
- build/windows/build_openh264.py
- mediaengine/shark/bld/client/android/build.py
- build/linux/build.sh

1.3 Check previous build/update history



Example: for mac, in script file: build/mac/buildAndupdate_openh264.sh

Check openh264 commit ID

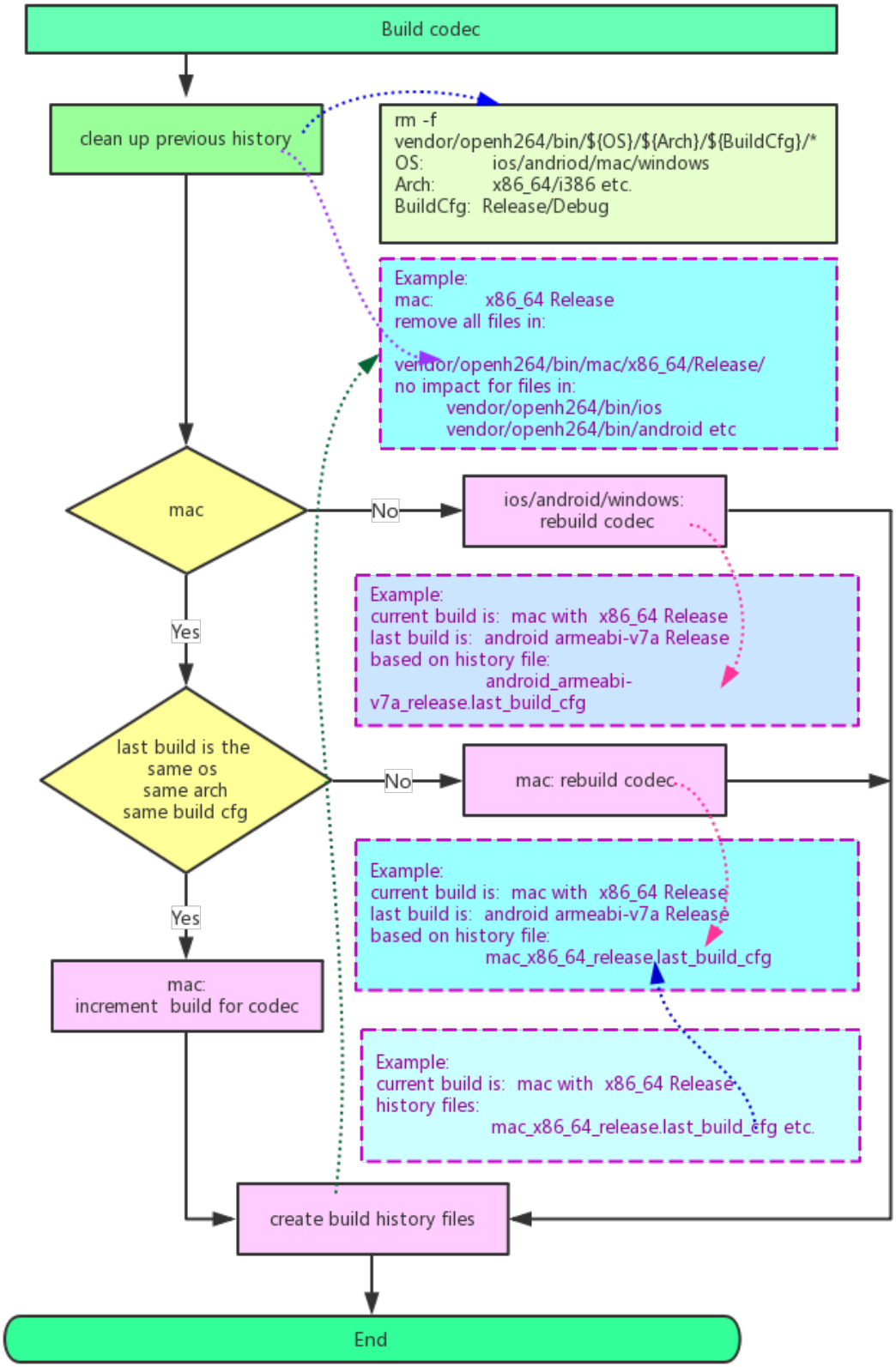
```
LibVersion=`git submodule | grep "openh264" | awk '{print $1}'`
LibVersionInfo="${BinDir}/${LibVersion}.last_build_commit"
```

Check openh264 lib exist or not, with the same commit ID

```
cd ${CODEC_PROJECT_PATH}
[ -e "${BinFile}" ] && [ -e "${LibVersionInfo}" ] && LastBuildFlag="True"
#clean bin dir if no last build or last build version not match current commit ID
[ "${LastBuildFlag}" = "False" ] && [ -d "${BinDir}" ] && rm -rf "${BinDir}"
```

1.4 Build and update

1.4.1 basic flow chart



1.4.2 script

Example: for mac, in script file: build/mac/buildAndupdate_openh264.sh

For mac,

- if last build is also for mac, not for ios/android etc.
- last build is the same arch : x86_64 or i386 etc
- last build is the same build cfg: Release or Debug

increment build only, for mac case, only using command:

- make
- no make clean

```
    [ -e "${LastBuildCfg}" ] && BuildCfgFlag="True"
    cd -
```

```
#for case that there is previous build libs
if [ "${LastBuildFlag}" = "True" ]; then
    [ "$BuildDownload"   = "build" ] && [ "${BuildCfgFlag}" = "True" ] && BuildOpenh264
else
    [ "$BuildDownload"   = "build" ]      && CleanOpenH264 && BuildOpenh264
    [ "${BuildDownload}" = "skip-build" ] && DownloadOpenH264
fi
```

```
make ARCH=${Arch} BUILDTYPE=${Config} >Mac_Build.log
if [ $? -ne 0 ]; then
    cat Mac_Build.log
    echo "build error, please check"
    exit 1
fi
```

1.4.3 Example:

git submodule command to get openh264 commit ID

```
HUASHI-M-400W:ios huashi$ git submodule
 fd2c8e4b7a54cc6c722fe2f0c6b5f0e748868e56 ../../vendor/AudioPairing
 d959d7095468d42b8fb5d6f4f111558dbcbbb936 ../../vendor/code-style (
 555bd944e509174947e5b8fd5860436dbb6795aa ../../vendor/libsdp (remo
 12ea269db3e4e9af7ce5de524fe07312fa6e035b ../../vendor/libsrtp (v2.
 84e88c1bb983934d30980f97c3214475a22c2acd ../../vendor/mari (v1.0.4
 42a1511104783bced551425119f0edbac0959111 ../../vendor/openh264 (he
```

Build for ios with dev/release

```
arch info for final openh264 lib:
Architectures in the fat file: Release-iphoneos/libopenh264.a are: armv7 armv7s arm64
/Users/huashi/project/WME/Huade/build/ios
**************************************************
    copy openh264 lib to wme distribution dir
    cp -f ../../vendor/openh264/Release-iphoneos/libopenh264.a  ../../distribution/ios/Release-iphoneos/
**************************************************
    copy debug lib for wme-debug build:  cp -f ../../vendor/openh264/Release-iphoneos/libopenh264.a  ../../
**************************************************
    Add build/update history for next build check
    BinFile is:         bin/ios/dev/Release/libopenh264.a
    LibVersionInfo is:  bin/ios/dev/Release/42a1511104783bced551425119f0edbac0959111.last_build_commit
**************************************************
/Users/huashi/project/WME/Huade/build/ios

 No previous build history,rebuild libs for wme successfully
******build/update lib for wme iOS successfully******
```

```
 ls -l ../../vendor/openh264/bin/ios/dev/Release/

ff        0 May  4 15:32 42a1511104783bced551425119f0edbac0959111.last_build_commit
ff  9668800 May  4 15:32 libopenh264.a
 ls -l ../../vendor/openh264/

aff      257 Feb 28 13:28 CODING_STYLE
aff      598 Feb 28 13:28 CONTRIBUTORS
aff     1295 Feb 28 13:28 LICENSE
aff    13120 Apr 24 14:26 Makefile
aff     8101 Feb 28 13:28 README.md
aff     8875 Feb 28 13:28 RELEASES
aff      204 May  4 15:32 Release-iphoneos
aff      170 Feb 28 13:29 autotest
aff      102 May  4 15:32 bin
aff      748 Apr 24 14:26 build
aff      167 Feb 28 13:29 code-coverage.sh
aff      306 Feb 28 13:29 codec
aff      170 Feb 28 13:29 docs
aff      116 Feb 28 13:29 gmpopenh264.info
aff    82049 May  4 15:31 iOS_Build.log
aff    19790 May  4 15:30 iOS_clean.log
aff        0 May  4 15:32 ios_dev_Release.last_build_cfg
aff   270648 May  4 15:31 libcommon.a
```

Build for mac with x86_64/Release

```
/Users/huashi/project/WME/Huade/build/mac
*****************************************************
    copy openh264 lib to distribution dir
    cp -rf ../../vendor/openh264/libopenh264.dylib  ../../distribution/mac/Release
*****************************************************
    copy debug lib for wme-debug build:  cp -f   ../../vendor/openh264//libopenh264.dylib  ../../distribution/mac/Debug
*****************************************************
    Add build/update history for next build check
    BinFile is:         bin/mac/x86_64/Release/libopenh264.dylib
    LibVersionInfo is:  bin/mac/x86_64/Release/42a1511104783bced551425119f0edbac0959111.last_build_commit
*****************************************************
/Users/huashi/project/WME/Huade/build/mac

 No previous build history,rebuild libs for wme successfully
******build/update lib for wme mac successfully*****
HUASHI-M-400W:mac huashi$ ls -l ../../vendor/openh264/bin/mac/
total 0
drwxr-xr-x  3 huashi  staff  102 May  4 15:40 x86_64
HUASHI-M-400W:mac huashi$ ls -l ../../vendor/openh264/bin/mac/x86_64/Release/
total 2256
-rw-r--r--  1 huashi  staff        0 May  4 15:40 42a1511104783bced551425119f0edbac0959111.last_build_commit
-rwxr-xr-x  1 huashi  staff  1152200 May  4 15:40 libopenh264.dylib
HUASHI-M-400W:mac huashi$ ls -l ../../vendor/openh264/
total 11472
-rw-r--r--   1 huashi  staff      257 Feb 28 13:28 CODING_STYLE
-rw-r--r--   1 huashi  staff      598 Feb 28 13:28 CONTRIBUTORS
-rw-r--r--   1 huashi  staff     1295 Feb 28 13:28 LICENSE
-rw-r--r--   1 huashi  staff    47306 May  4 15:40 Mac_Build.log
-rw-r--r--   1 huashi  staff    20388 May  4 15:39 Mac_Clean.log
-rw-r--r--   1 huashi  staff    13120 Apr 24 14:26 Makefile
-rw-r--r--   1 huashi  staff        0 May  4 15:40 OSX_x86_64_Release.last_build_cfg
```

2. Download from ftp server

2.1 Basic info

- FTP server: ftp://10.224.203.70/JenkinsRelease/
  Account: OpenH264/wme@cisco
- FTP server wiki: https://wiki.cisco.com/display/WX2/OpenH264+ftp+server

- Tools for upload and download from ftp server
  https://sqbu-github.cisco.com/huashi/OpenH264-Release2FTPServer

- In wme, also using curl tools to download from ftp server

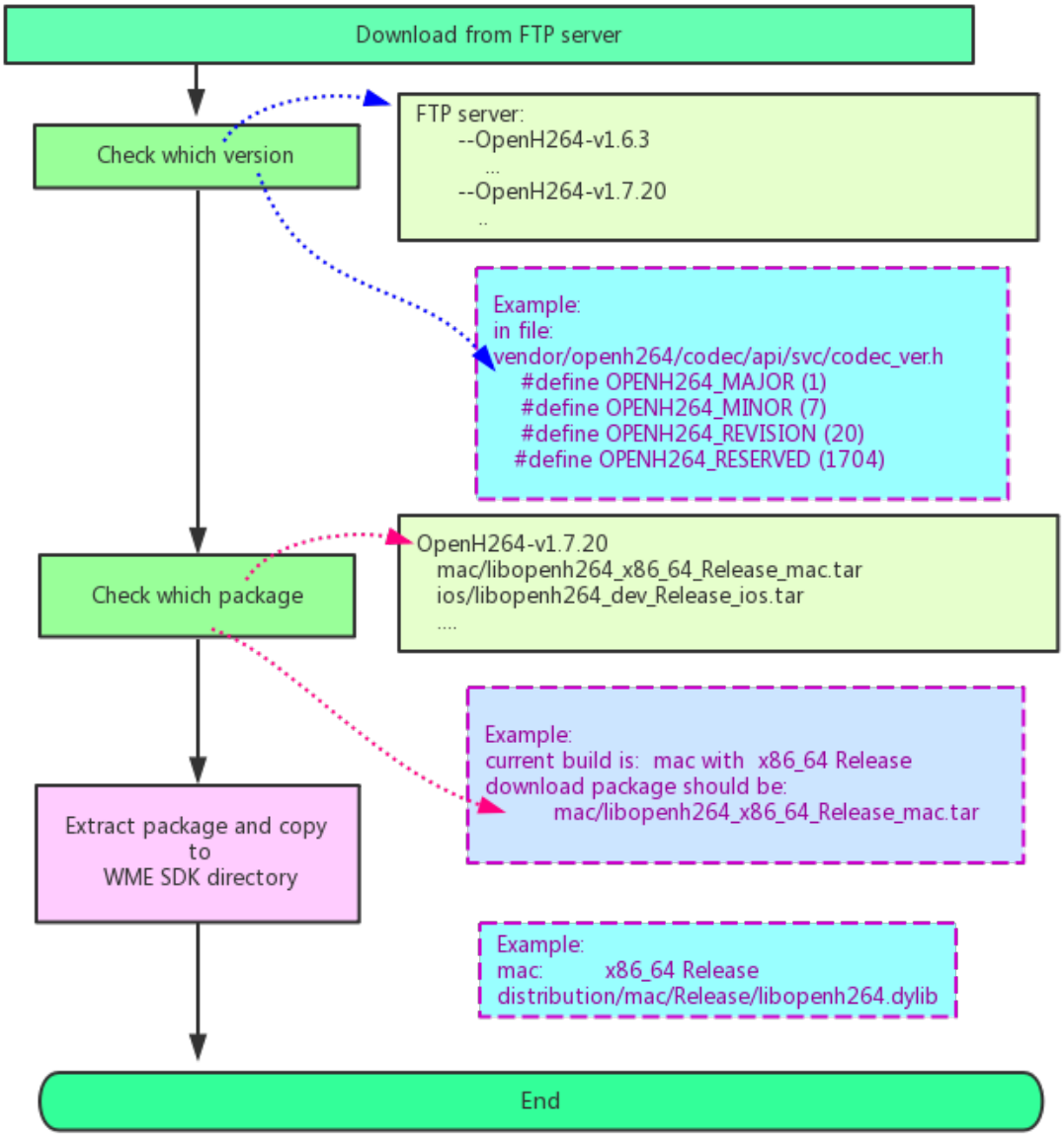
Index of /JenkinsRelease/

Name	Size	Date Modified
[parent directory]		
OpenH264-v1.6.3/		12/12/16, 1:49:00 PM
OpenH264-v1.6.4/		12/17/16, 6:17:00 PM
OpenH264-v1.6.5/		12/23/16, 10:15:00 AM
OpenH264-v1.6.6/		1/19/17, 10:43:00 AM
OpenH264-v1.6.7/		1/19/17, 10:08:00 AM
OpenH264-v1.6.8/		3/1/17, 3:28:00 PM
OpenH264-v1.7.0/		3/16/17, 3:39:00 PM
OpenH264-v1.7.1/		3/29/17, 6:16:00 PM
OpenH264-v1.7.20/		4/20/17, 9:47:00 AM

Name	Size	Date Modified
[parent directory]		
android/		3/16/17, 3:39:00 PM
ios/		3/16/17, 3:35:00 PM
linux/		3/16/17, 3:38:00 PM
mac/		3/16/17, 3:37:00 PM
win/		3/16/17, 3:36:00 PM

Name	Size	Date Modified
[parent directory]		
api_mac.tar	63.0 kB	3/16/17, 3:37:00 PM
exefile_x86_64_Debug_mac.tar	8.1 MB	3/16/17, 3:37:00 PM
exefile_x86_64_Release_mac.tar	6.1 MB	3/16/17, 3:37:00 PM
exefile_x86_Debug_mac.tar	7.8 MB	3/16/17, 3:37:00 PM
exefile_x86_Release_mac.tar	6.0 MB	3/16/17, 3:37:00 PM
libgmpopenh264_x86_64_Debug_mac.tar	1.5 MB	3/16/17, 3:37:00 PM
libgmpopenh264_x86_64_Release_mac.tar	1.1 MB	3/16/17, 3:37:00 PM
libgmpopenh264_x86_Debug_mac.tar	1.4 MB	3/16/17, 3:37:00 PM
libgmpopenh264_x86_Release_mac.tar	1.1 MB	3/16/17, 3:37:00 PM
libopenh264_x86_64_Debug_mac.tar	1.3 MB	3/16/17, 3:37:00 PM
libopenh264_x86_64_Release_mac.tar	1.1 MB	3/16/17, 3:37:00 PM
libopenh264_x86_Debug_mac.tar	1.3 MB	3/16/17, 3:37:00 PM
libopenh264_x86_Release_mac.tar	1.1 MB	3/16/17, 3:37:00 PM

2.1 Basic flowchart



2.2 Script

2.2.1 check version

build/ios/buildAndupdate_openh264.sh
build/mac/buildAndupdate_openh264.sh
build/windows/build_openh264.py

parse openh264 version info from:

vendor/openh264/codec/api/svc/codec_ver.h

```
#ifndef CODEC_VER_H
#define CODEC_VER_H

#include "codec_app_def.h"

static const OpenH264Version g_stCodecVersion  = {1, 7, 20, 1704};
static const char* const g_strCodecVer  = "OpenH264 version:1.7.20.1704";

#define OPENH264_MAJOR (1)
#define OPENH264_MINOR (7)
#define OPENH264_REVISION (20)
#define OPENH264_RESERVED (1704)

#endif  // CODEC_VER_H
```

Script for check version:

Example for android

mediaengine/shark/bld/client/android/build.py

```
def parse_openhh264_version():
    global package_version, abi_archs
    openh264_version_file =os.path.join(openh264_dir,"codec/api/svc/codec_ver.h")
    version_info=open(openh264_version_file).readlines()
    for line in version_info:
        if ( re.search("g_strCodecVer", line) ):
            full_version = re.findall("\d+", line)
            package_version = full_version[1] + "." + full_version[2] + "." + full_version[3]
```

ios/mac, using tools from below link to complete all version check and download process

https://sqbu-github.cisco.com/huashi/OpenH264-Release2FTPServer

2.2.1 download

ios/mac, using tools from to complete all version check and download process

https://sqbu-github.cisco.com/huashi/OpenH264-Release2FTPServer

```
def download_openh264_lib():
    global package_version, package_url, openh264_lib
    tar_file     = "libopenh264_" + abi_archs[app_abi]  + "_Release_android.tar"
    packge_url   = package_url    + "OpenH264-v"        + package_version + "/android/" + tar_file
    download_cmd = "curl -u OpenH264:wme@cisco  "       + packge_url +  "  -o  " + tar_file
    print ("openh264 skip build and download from ftp server")
    print("download_cmd is: " + download_cmd)
    os.system(download_cmd)
    extract_cmd="tar -xvf " + tar_file
    os.system(extract_cmd)
    shutil.copy(openh264_lib, openh264_dir)
```

ios/mac, using tools from below link to complete all version check and download process

https://sqbu-github.cisco.com/huashi/OpenH264-Release2FTPServer

```
function DownloadOpenH264(){
    cd ${CODEC_PROJECT_PATH}
    OpenH264Dir=`pwd`

    #clean prevous download history
    git clean -f ./*.tar
    rm -rf ${TargetDir}
    [ -d openh264-jenkins ] && rm -rf openh264-jenkins

    #clone download script
    ScriptCloneCmd="git clone git@sqbu-github.cisco.com:OpenH264/openh264-jenkins.git openh264-jenkins"
    echo "ScriptCloneCmd is ${ScriptCloneCmd}"
    ${ScriptCloneCmd}
    if [ $? -ne 0 ]; then
        echo "Error: clone download script from openh264-jenkins error"
        exit 1
    fi

    #always download the release openh264 library for WME
    bash openh264-jenkins/run_DownloadFromFTPServer.sh "ios" "lib" "${Arch}" "${Config}" "${OpenH264Dir}"
    if [ $? -ne 0 ]; then
        echo "Error: download openh264 ios lib from ftp server failed"
        exit 1
    fi

    tar -xvf libopenh264_${Arch}_${Config}_ios.tar
    rm -rf openh264-jenkins
    cd -
}
```

3. To do

- unify build and update script in openh264 internal repos
- windows build support VS2015, VS2017 etc.
- Incremental compile for all OS bout script level and Make file level