

## **VC-5 Test Materials Release Notes**

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# 1 VC-5 Codec Software Releases

## 1.1 Release 4.x

Modified the CMake build files and codec test script to work on Windows. Added math library to the make files for the comparer utility. Updated the copyright in the source code and build scripts.

## 1.2 Release 4.3

Added new material to the readme files (readme.pdf and readme.html) describing how to obtain and install credentials for the VC-5 Amazon account. Substantially increased the amount of documentation on how to obtain and install additional tools and libraries required to run the software.

>>> This release was submitted to TC-10E for FCD ballot.

## 1.3 Release 4.2.1

Fixed minor error in the FCD ballot package.

## 1.4 Release 4.2

Improvements to the scripts for building and testing the codec. Added a target to the make file to download media and a target to run the comprehensive test suite. This release is a candidate for FCD ballot.

## 1.5 Release 4.1

Added a script to download test media from Amazon S3. The images and bitstreams required for conformance testing are too large to upload to Kavi. A script is now provided in the software distribution to handle all of the details needed to download the test materials (media). The script is invoked from the make file:

```
make media
```

A media file will not be downloaded if the file already exists on the local hard drive and the checksum of the local file is equal to the checksum of the remote file on Amazon S3.

## 1.6 Release 4.0.1

Added missing files for running the test codec script.

## 1.7 Release 4.0

Added test materials for image sections with nested layers to the media distribution package. Added build files for comparer and converter to the codec software distribution package. Improved the usage message printed by the encoder and decoder. Fixed bug in decoding image sections that do not contain nested layers. Created build files using make tool for the comparer and converter utility programs and added the comparer and converter to the build scripts.

## 1.8 Release 3.9

Added build targets to the top-level make file to clean the files created by a build using the CMake tool, including a clean-all target for removing the files generated by running CMake. Updated development notes based on work done today.

Added CMake build targets for encoder, decoder, converter, and comparer to clean all files.

Eliminated warnings in the converter build.

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## 1.9 Release 3.8

Fixed the make files for building the comparer and converter. Added CMake files for building the comparer and converter. Modified the top-level make file to build the codec and utilities by default.

## 1.10 Release 3.7

Fixed two occurrences of bad arguments passed to memset.

Added code to control which VC-5 parts are enabled implicitly. For example, by default VC-5 Part 3 Image Formats is enabled when either Part 5 Layers or Part 6 Sections are enabled. This logic is represented by a table that can be modified to suit new use cases. See the readme file for more information.

Improvements to the scripts for building and packaging the codec for distribution:

- Wrote a new script to update the version number in the Doxygen configuration files for the encoder and decoder.
- Extended the script to update the version number and suffix in encoder and decoder source code.
- Added a list of files in which the version number and suffix should be updated so that all files are automatically updated in preparation for creating a codec software distribution.
- Added a new make file that performs all steps required to create a codec software distribution.

## 1.11 Release 3.6

Major code changes for encoding and decoding layers using file lists.

Modified encoder and decoder to handle image sections with nested layers.

Cleaned up the code for parsing command-line parameters:

- Removed unused fields in the data structure for command-line arguments.
- Rewrote the code for inferring the values of missing command-line parameters.
- Cleaned up logic of command-line parameters in the case of encoding a single image.
- Improved encoding of image sections using the new scheme for command-line parameters.

Fixed bug in the routine for setting the input pixel precision by adding a case for the NV12 pixel format.

Improvements to the codec test script:

- Modified the codec test script to change the output location for results and master files to match changes to the directory structure for test media.
- Changed the codec test script to enable comparison of the encoded bitstream to the reference bitstream.
- Added code to compare the results of testing image sections with the references bitstreams and decoded images.
- Added code to the codec test script to enable use of the encoder and decoder executables built using CMake.
- Split test codec procedure into sub-procedures for different types of tests.
- Modified test scripts to work with new encoder and decoder commands for layers.
- Improved reporting of test case statistics by the codec test script.

Improvements to the build process:

- Fixed the top-level make file to run Doxygen for creating encoder and decoder documentation.
-

## 1.12 Release 3.5.2

Major rewrite of the top-level logic and code for parsing command-line parameters to simplify and improve the correctness of the encoder.

## 1.13 Release 3.5.1

New release of encoder and decoder with support for all features specified in VC-5 Parts 5 and 6, including support for image sections.

## 1.14 Release 3.5

First release of encoder and decoder with support for image sections:

- Added code to read multiple input images when image sections are enabled.
- Added code to write the image section header.
- Modified decoder main program to use new file list data structure.
- Finished code to decode bitstreams that contain image sections.
- Moved routine to parse the enabled sections command-line parameter from the sections module to the arguments module.
- Modified the decoder to terminate gracefully on end of stream.
- Simplified the command-line arguments for the encoder and decoder.
- Changed "reference encoder" to "sample encoder" to match VC-5 standards documents.
- Added code to support testing VC-5 Part 6 bitstreams.
- Modified codec so that Part 3 Image Formats is enabled when layers or sections are enabled.

Improvements to the codec test script:

- Modified test scripts to work with new build directory layout.
- Added debugging code to the test codec script and created makefile for notes and tasks.
- Implemented log file and better output for codec testing.
- Added capability to run a suite of codec tests.
- Fixed script for copying test results to master folder.
- Added code to test image sections.
- Added image section tests to the comprehensive test suite.

Changes to the build process:

- Changed the build subdirectory from "builds" to "build".
  - Moved build files for make to linux sub-directory.
  - Moved the CMake build files to a cmake sub-directory.
  - Removed Visual Studio project files.
  - Changes to the scripts for packaging a codec distribution to match new directory layout.
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### **1.15 Release 3.0**

Added support for layers and sections as specified in VC-5 Parts 5 and 6, but without support for encoding image sections.

### **1.16 Release 2.0**

Added code to support encoding and decoding subsampled color difference components as specified in VC-5 Part 4. Added the NV12 pixel format to the image unpacking and repacking processes.

### **1.17 Release 1.9**

Added code to support the unique image identifier and the inverse component transform and permutation to the encoder and decoder. The decoder can parse the unique image identifier and the inverse component transform and inverse component permutation if these syntax elements are present in the bitstream.

### **1.18 Release 1.8**

Added support for the unique image identifier and the component transform and permutation.

### **1.19 Release 1.7**

Added CMakeLists.txt files to the encoder and decoder so that the codec can be built using CMake. See the readme file for information on using CMake.

### **1.20 Release 1.2.0**

Modified the codec to support Bayer encoding and decoding as specified in VC-5 Part 3. The ports of VC-5 that are supported by the codec are specified using compile-time flags. This release has the flags set for VC-5 Part 3. The code was tested on a BYR4 image in debug mode.

### **1.21 Release 1.1.0**

Created Eclipse projects for building the reference decoder and sample encoder on Unix and Macintosh systems

### **1.22 Release 1.0.2**

This release includes changes to the readme file and release notes. The build instructions were moved from the VC-2 Part 2 draft to the readme file. Both files were converted to the AsciiDoc structured text format so that more readable documents could be included in the source code distribution.

### **1.23 Release 1.0.1**

This releases fixes the following problems:

1. Missing platform-specific files for the test codec script.

## 1.24 Release 1.0.0

This release includes the following changes:

1. Added the CA32 output image format to the decoder as described in VC-5 Part 2.
2. Changed the copyright to add SMPTE.

## 1.25 Release 0.9.0

This release includes the following changes:

1. Created a solution and project file for Visual Studio 2012 Express.
2. Several changes to the inverse wavelet transforms to accomodate images where the width is an odd number.
3. Renamed frame.c to image.c so that the filename is consistent with the nomenclature in the standard. Note: This change may impact the make files and Visual Studio project files.

This release was tested on many sample images using automated testing tools. The sample images included both natural and synthetic images. The smallest image size that was tested was 96x96 BYR4 that corresponds to component array dimensions of 48x48 which is the smallest size defined by VC-5 Part 1.

## 2 Contact Information

Send bug reports to: [bugs@vc5codec.org](mailto:bugs@vc5codec.org)