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**ISO/IEC JTC 1/SC 29/WG1**
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**Coding of Still Pictures**

| **JBIG** | **JPEG** |
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| Joint Bi-level Image Experts Group | Joint Photographic Experts Group |

**TITLE:** Instructions for Submissions to the Call for Proposals on JPEG Pleno Point Cloud Coding

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# Instructions for Submissions to the Call for Proposals on JPEG Pleno Point Cloud Coding

## 1. Introduction

Submission of all materials related to the Call for Proposals on JPEG Pleno Point Cloud Coding (CfP) response will be done using a system configured specifically for that end. Each team will be assigned a private identifier (`TEAMID`) and a dedicated private area in the submission system, to be used for uploading all materials (software, point clouds, bitstreams, instructions, etc.) required as stated in the Call for Proposals document [1].

The submission system is accessible using a web browser, in secure mode, using the following address and credentials listed next.

Site: https://nas-lpm.co.it.pt

UserName: `TEAMID`

Password: `TEAMPASS`

The UserName (`TEAMID`) and Password (`TEAMPASS`) will be sent to each team, individually.

After logging in please select "Shared with me" on the left and then click on the folder icon name `TEAMID`. You should see a set of folders matching the descriptions in section 2.

Figure 1 shows a screenshot of the web interface and shows the arrangements of directories and the location of the "Shared with me" button.

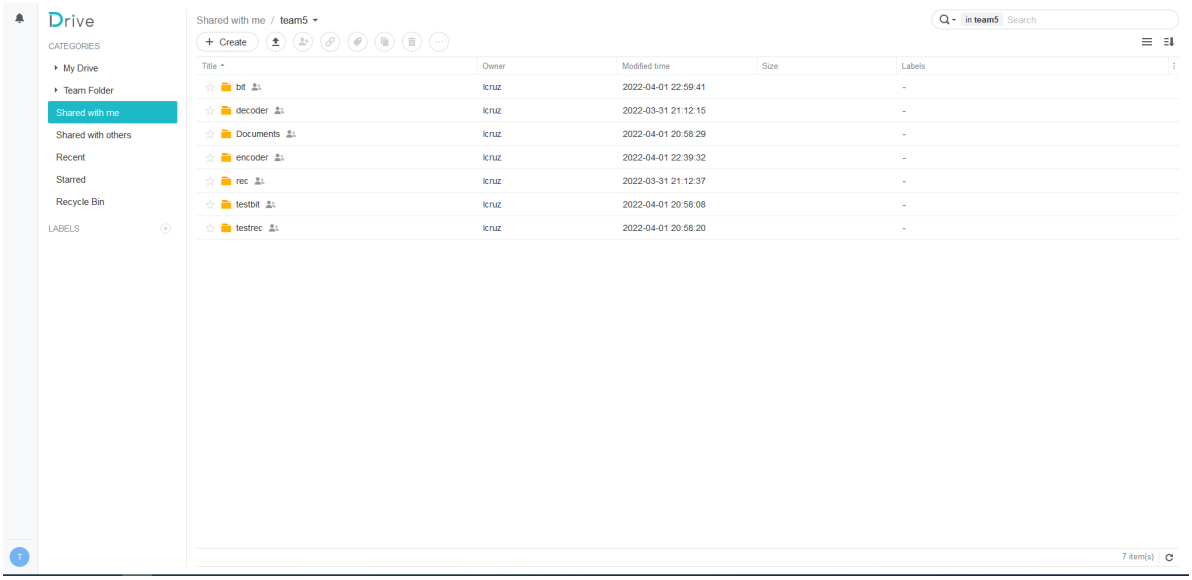


**Figure 1: Interface to the submission system for a hypothetical team.**

For ease of use the system allows the deletion and creation of folders, but before closing the submission, submitters should make sure the folder structure is exactly as specified in section 2.

Please avoid mentioning names of submitter and organization in file names, comments in a code or/and decoder logs or any other files; use `TEAMID` if needed.

Submission occurs in **two stages**:

Prior to the deadline of the **23:59h UTC, 31st of May 2022**, teams should submit the encoder, decoder and associated script files and instructions as per the Call for Proposals document [1].

After receiving the test dataset on the **3rd of June 2022**, but before the deadline of the **23:59h UTC, 17th of June 2022**, teams should submit the bit streams, and reconstructed point clouds for each of the test set point clouds.

## 2. Folder Submission Structure

The CfP response submission should be placed in the appropriate folders and provided at the submission web portal. If any submitter is submitting more than one codec then a `CID` field should be added to the relevant filenames to identify the codec (more details below).

Submission of encoder and decoder (prior to or on the **23:59h UTC, 31st of May 2022**):

| File/folder | Contents | Comments |
|---|---|---|
| `TEAMID`/models/ | Contains codec models or other information shared by both encoders and decoders. | NO modifications or re-uploads are possible after the 31st of May 2022. |
| `TEAMID`/encoder/ | Contains materials (SW and configuration files) needed for encoding. | NO modifications or re-uploads are possible after the 31st of May 2022. |
| `TEAMID`/decoder/ | Contains materials (SW and configuration files) needed for decoding. | NO modifications or re-uploads are possible after the 31st of May 2022. |
| `TEAMID`/encode_CID.sh | Example of command line for the encoder. The script should allow CPU-only and CPU+GPU encoding, when supported. This script should be placed in the root folder of the team's submission page. `CID` refers to the codec ID in the case that proponents submit multiple codecs. In the case that proponents submit only one codec then this should be 01 and in the case where | encode_CID.sh reads point clouds and configuration files, produces encoded bitstreams and writes them to disk, also outputting txt and json files with encoder run-time and MACs/kip[1]. |

| | | |
|---|---|---|
| | multiple codecs are submitted, then should increment as 02, 03 and so forth. | |
| TEAMID/decode_CID.sh | Example of command line for the decoder. The script should allow CPU-only and CPU+GPU decoding, when supported. This script should be placed in the root folder of the team's submission page. CID refers to the codec ID in the case that proponents submit multiple codecs. In the case that proponents submit only one codec then this should be 01 and in the case where multiple codecs are submitted, then should increment as 02, 03 and so forth. | decode_CID.sh reads bitstream(s) and configuration files, reconstructs point clouds and writes them to disk, also outputting txt and json files with decoder run-time and MACs/kip[1]. |
| TEAMID/README.md | File with instructions for all encoders and decoders. This should be placed in base directory of the team's submission page. | |

Submission of encoded and reconstructed test set point clouds from proposals as well as proposal presentation (prior to or on the **23:59h UTC, 17th of June 2022**):

| **File/folder** | **Content** | **Comments** |
|---|---|---|
| TEAMID/testbit/ | Contains test set bit streams. | NO modifications or re-uploads are possible after the 17st of June 2022. |
| TEAMID/testrec/ | Contains reconstructed test set point clouds. | NO modifications or re-uploads are possible after the 17st of June 2022. |

[1] An example of the calculation of complexity metrics for a learning-based image codec can be found at: https://gitlab.com/wg1/jpeg-ai/jpeg-ai-qaf/-/blob/main/examples/example.py

| | | |
|---|---|---|
| TEAMID/Documents | Folder for uploading the proposal description and all other elements of the proposal as described in Section 6.1 and Annex A of Call for Proposals document [1]. | NO modifications or re-uploads are possible after the 17st of June 2022. |

Each team submission area also contains a number of folders for use by the JPEG Committee if needed:

| File/folder | Content | Comments |
|---|---|---|
| TEAMID/bit/ | Folder for testing the encoding operation of the submission by the JPEG Committee. | Filled during encoding by the JPEG Committee if required. |
| TEAMID/rec/ | Folder for testing the decoding operation of the submission by the JPEG Committee. | Filled during decoding by the JPEG Committee if required. |

## 3. Bitstreams and Reconstructed Point Clouds Naming Conventions

All bitstream and reconstructed point cloud files should follow the **naming conventions**:

- for bitstreams: `TEAMID_CID_PCCID_BR.bits`
- for reconstructed point clouds: `TEAMID_CID_PCCID_BR.ply`

`CID` refers to the codec ID in the case that proponents submit multiple codecs. In the case that proponents submit only one codec then this should be 01 and in the case where multiple codecs are submitted, then should increment as 02, 03 and so forth.

`PCCID` refers to the point cloud ID of the test set point cloud and should be 01 for the first point cloud, 02 for the second point cloud and so forth.

`BR` refers to the target bit rate as defined and labeled in Table 1 of the Common Training and Test Conditions for JPEG Pleno Point Cloud document [2] and should be one of R1, R2, R3 or R4 for both bitstreams and reconstructed point clouds.

In the case of solutions implementing scalability, ***reconstructed point clouds only*** should be provided for different operating points of the scalable codec, with `BR` representing the rates R1, R2, R3 and R4.

## 4. Enquires and Clarification

For clarification and enquires please contact:

Stuart Perry Stuart.Perry@uts.edu.au

Luis Cruz lcruz@deec.uc.pt

## 5. REFERENCES

[1] ISO/IEC JTC1/SC29/WG1 N100097, "Final Call for Proposals on JPEG Pleno Point Cloud Coding", Online, January 2022.

[2] ISO/IEC JTC1/SC29/WG1 N100112, "JPEG Pleno Point Cloud Coding Common Training and Test Conditions v1.1", Online, January 2022.