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Technical Note

"Incorporation of Version Information in INSAT-3D and INSAT-3DR Imager and Sounder Data Products"

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Abstract	This Note give description about Version convention in INSAT-3D/3DR and future missions.
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1. Introduction

India launched its meteorological satellites INSAT-3D on 26th July, 2013 and from French, Guyana using ARIANE rocket and INSAT-3DR in 28th August, 2016 from Satish Dhawan Sapce Centre, Shri Hari Kota, India. INSAT-3D nd INSAT-3DR provide meteorological observations with the following mission objectives:

- To monitor earth's surface, carryout oceanic observations and its environment in various spectral channels of meteorological importance.
- To provide the vertical profile of temperature and humidity parameters of the atmosphere.
- To provide the data collection and data dissemination capabilities from the Data Collection platforms (DCPs).
- To provide the satellite aided search and rescue services.

To accomplish the above mission objectives, INSAT-3D and INSAT-3DR have the following payloads on board the spacecraft:

- Six channel imager
- Nineteen channel sounder
- Data Relay Transponder(DRT)
- Satellite aided Search and Rescue(S&SR) System

INSAT-3D and 3DR add a new dimension to weather monitoring through its atmospheric Sounding System, which provides vertical profiles of temperature (40 levels from surface to ~ 70 km), humidity (21 levels from surface to ~ 15 km) and integrated ozone from surface to top of the atmosphere.

Both INSAT-3D and INSAT-3DR provide continuity to earlier missions and further augment the capability to provide various meteorological as well as search and rescue services. They carry a multi-spectral Imager (optical radiometer) capable of generating the images of the earth in six wavelength bands significant for meteorological observations, namely, visible, shortwave infrared, middle infrared, water vapor and two bands in thermal infrared regions, offering an improved 1 km resolution in the visible band for the monitoring of mesoscale phenomena and severe local storms.

The two new SWIR and MWIR bands with a resolution of 1 km and 4 km, respectively, enables better land-cloud discrimination and detection of surface features like snow. One more significant improvement is the split-band TIR channel with two separate windows in 10.2-11.2 and 11.5-12.5 μm regions with 4 km resolution.

2. Version Need and Nomenclature:

In recent times, it has been observed that many parameter retrieval algorithms gets updated and reprocessing of old data needs to be carried out. It becomes really important from data centre point of view to maintain version information of any product. Currently Data Products filename does not have

any provision to add version number and when reprocessing is performed, old products gets overwritten. To address this, it was decided to introduce version number in HDF-5 data product filename as well as in metadata chip filename.

A six character version information "V01R00" is introduced in data product filename and metadata chip .

The HDF-5 data product filename can be coined as

SSNNN_DDMMMYYYY_HHMM_LOP_XXX_VXXRXX.h5

Where

SS=Satellite ID (e.g. 3D for INSAT-3D, 3R for INSAT-3DR)

NNN=Sensor ID (IMG for Imager, SND for Sounder)

DDMMMYYYY=Date of Acquisition (DD=Day of Month, MMM=Month of the year, YYYY= year of Pass e.g. 29MAR2022)

HHMM=Time of Acquisition (HH=Hour of day MM=minute of the hour)

LOP=Level of Processing (L1B, L1C, L2B,L2C.. etc.) (refer Annexure 1)

XXX=Parameter Name (refer Annexure 1)

VXX= Major version number e.g. V01

RXX= Minor version release e.g. R01

Same convention will be followed while generating meta data chips.

Change in Version Number: The version number will get change when

a. If the algorithm itself get change.
b. If there change in coefficients which are key to retrieve the parameter.

Change in Release Number: The release will change when there are

a. Minor bug fixes
b. Minor changes in non-key coefficients.

Annexure - 1

To resolve the above mentioned issue it is decided to add version number in filename. Following table shows the new file name of each product that gets generated.

S.No.	Product Code (LOP_Parameter name)	Sample Product Filename
1.	L1B_STD	3DIMG_17JAN2022_0730_L1B_STD_V01R00
2.	L1C_ASIA_MER	3DIMG_17JAN2022_0730_L1C_ASIA_MER_V01R00
3.	L1C_HSP	3DIMG_17JAN2022_0730_L1C_HSP_V01R00
4.	L1C_SGP	3DIMG_17JAN2022_0730_L1C_SGP_V01R00
5.	L1C_WMO	3DIMG_17JAN2022_0730_L1C_WMO_V01R00
6.	L2B_CMK	3DIMG_17JAN2022_0730_L2B_CMK_V01R00
7.	L2B_CTP	3DIMG_17JAN2022_0730_L2B_CTP_V01R00
8.	L2B_HEM	3DIMG_17JAN2022_0730_L2B_HEM_V01R00
9.	L2B_IMC	3DIMG_17JAN2022_0730_L2B_IMC_V01R00
10.	L2B_LST	3DIMG_17JAN2022_0730_L2B_LST_V01R00
11.	L2B_OLR	3DIMG_17JAN2022_0730_L2B_OLR_V01R00
12.	L2B_SST	3DIMG_17JAN2022_0730_L2B_SST_V01R00
13.	L2B_TPW	3DIMG_17JAN2022_0730_L2B_TPW_V01R00
14.	L2B_UTH	3DIMG_17JAN2022_0730_L2B_UTH_V01R00
15.	L2C_CMP	3DIMG_17JAN2022_0730_L2C_CMP_V01R00
16.	L2C_FOG	3DIMG_17JAN2022_0730_L2C_FOG_V01R00
17.	L2C_INS	3DIMG_17JAN2022_0730_L2C_INS_V01R00
18.	L2C_LSA	3DIMG_17JAN2022_0730_L2C_LSA_V01R00
19.	L2C_LSA	3DIMG_17JAN2022_0730_L2C_LSA_V01R00
20.	L2C_NER	3DIMG_17JAN2022_0730_L2C_NER_V01R00
21.	L2C_NER	3DIMG_17JAN2022_0730_L2C_NER_V01R00
22.	L2C_SWIR_BOA	3DIMG_17JAN2022_0730_L2C_SWIR_BOA_V01R00
23.	L2C_SWIR_RHO	3DIMG_17JAN2022_0730_L2C_SWIR_RHO_V01R00
24.	L2C_VIS_BOA	3DIMG_17JAN2022_0730_L2C_VIS_BOA_V01R00
25.	L2C_VIS_RHO	3DIMG_17JAN2022_0730_L2C_VIS_RHO_V01R00
26.	L2G_AOD	3DIMG_17JAN2022_0730_L2G_AOD_V01R00
27.	L2G_IMR	3DIMG_17JAN2022_0730_L2G_IMR_V01R00
28.	L2G_WDP	3DIMG_17JAN2022_0730_L2G_WDP_V01R00
29.	L2P_FIR	3DIMG_17JAN2022_0730_L2P_FIR_V01R00
30.	L2P_IRW	3DIMG_17JAN2022_0730_L2P_IRW_V01R00
31.	L2P_SMK	3DIMG_17JAN2022_0730_L2P_SMK_V01R00
32.	L2P_VSW	3DIMG_17JAN2022_0730_L2P_VSW_V01R00
33.	L2P_WVW	3DIMG_17JAN2022_0730_L2P_WVW_V01R00

34.	L3G_IMR_3HR	3DIMG_17JAN2022_0730_L3G_IMR_3HR_V01R00
35.	L3G_GPI_DLY	3DIMG_17JAN2022_0000_L3G_GPI_DLY_V01R00
36.	L3G_IMR_DLY	3DIMG_17JAN2022_0000_L3G_IMR_DLY_V01R00
37.	L3C_LSA_15D	3DIMG_17JAN2022_0730_L3C_LSA_15D_V01R00
38.	L3C_LSA_15D	3DIMG_17JAN2022_0730_L3C_LSA_15D_V01R00
39.	L3C_LSA_DLY	3DIMG_17JAN2022_0730_L3C_LSA_DLY_V01R00
40.	L3C_LSA_DLY	3DIMG_17JAN2022_0730_L3C_LSA_DLY_V01R00
41.	L3C_DHI_DLY	3DIMG_17JAN2022_0000_L3C_DHI_DLY_V01R00
42.	L3C_DNI_DLY	3DIMG_17JAN2022_0000_L3C_DNI_DLY_V01R00
43.	L3C_GHI_DLY	3DIMG_17JAN2022_0000_L3C_GHI_DLY_V01R00
44.	L3C_INS_DLY	3DIMG_17JAN2022_0000_L3C_INS_DLY_V01R00
45.	L3C_INS_DLY	3DIMG_17JAN2022_0000_L3C_INS_DLY_V01R00
46.	L3C_PET_DLY	3DIMG_17JAN2022_0000_L3C_PET_DLY_V01R00
47.	L3C_PET_DLY	3DIMG_17JAN2022_0000_L3C_PET_DLY_V01R00
48.	L3C_PET_DSM	3DIMG_17JAN2022_0000_L3C_PET_DSM_V01R00
49.	L3C_SNW_10D	3DIMG_17JAN2022_0000_L3C_SNW_10D_V01R00
50.	L3C_AET_DLY	3DIMG_17JAN2022_0000_L3C_AET_DLY_V01R00
51.	L3C_AET	3DIMG_17JAN2022_0000_L3C_AET_V01R00
52.	L3B_HEM_3HR	3DIMG_17JAN2022_0730_L3B_HEM_3HR_V01R00
53.	L3B_IMC_3HR	3DIMG_17JAN2022_0730_L3B_IMC_3HR_V01R00
54.	L3B_OLR_DLY	3DIMG_17JAN2022_0000_L3B_OLR_DLY_V01R00
55.	L3B_IMC_DLY	3DIMG_17JAN2022_0000_L3B_IMC_DLY_V01R00
56.	L3B_SWR_DLY	3DIMG_17JAN2022_0000_L3B_SWR_DLY_V01R00
57.	L3B_LST_MAX_DLY	3DIMG_17JAN2022_0000_L3B_LST_MAX_DLY_V01R00
58.	L3B_LST_MIN_DLY	3DIMG_17JAN2022_0000_L3B_LST_MIN_DLY_V01R00
59.	L3B_SST_REG_DLY	3DIMG_17JAN2022_0000_L3B_SST_REG_DLY_V01R00
60.	L3B_SST_VAR_DLY	3DIMG_17JAN2022_0000_L3B_SST_VAR_DLY_V01R00
61.	L3B_UTH_DLY	3DIMG_17JAN2022_0000_L3B_UTH_DLY_V01R00
62.	L3B_HEM_DLY	3DIMG_17JAN2022_0000_L3B_HEM_DLY_V01R00
63.	L3B_TIR1_TEMP_DLY	3DIMG_17JAN2022_0000_L3B_TIR1_TEMP_DLY_V01R00
64.	L3B_TIR2_TEMP_DLY	3DIMG_17JAN2022_0000_L3B_TIR2_TEMP_DLY_V01R00
65.	L3B_WV_TEMP_DLY	3DIMG_17JAN2022_0000_L3B_WV_TEMP_DLY_V01R00
66.	L3B_MIR_TEMP_DLY	3DIMG_17JAN2022_0000_L3B_MIR_TEMP_DLY_V01R00