Standards Change Request

SCR3-1151

Change TELEMETRY_FORMAT_ID from static to dynamic and increase length

Provenance:

Date: 2009-05-27
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Problem:

The keyword TELEMETRY_FORMAT_ID currently has values only for Galileo. Its current definition:

- Description == "The TELEMETRY_FORMAT_ID element supplies a telemetry format code."
- Standard Value Type == STATIC
- Standard Values == "AI8", "ALL", "BDT", ...
- Standard Value Description == "For Galileo, standard values for Phase 1 (Cruise Operations) are: ... 23=AI8 ... For Galileo, standard values for Phase 2 (Jupiter Orbital Operations) are: ... 9=BDT ... 23=AI8". "ALL" is not mentioned.

The DAWN Framing Camera team wants to use this keyword. The format of the telemetry is directly and unambiguously tied to the flight software used. The latest version of the SIS says TELEMETRY_FORMAT_ID "provides the version of the UDP library [flight software] which is loaded into the instrument's NVRAM". The legal values and their descriptions are:

"302" = UDP library v. 3.02
"303" = UDP library v. 3.03
"304" = UDP library v. 3.04

PPI wants to add value "LPW" for Galileo. “LPW” was not originally listed as a standard value, as Galileo was redesigned to record data at the originally planned rates and to play back at much lower rates after the antenna failed. The values:

Format	Record Rate (Kbps)
LPW	7.68 - All instruments at their nominal rates
MPP	LPW + PWS@ 19.2 + NIMS + fill @0.48
MPW	LPW + PWS@ 46.56 + NIMS + fill @0.48
HPW	LPW + PWS@ 94.56 + NIMS + fill @0.48

MPR LPW + Probe@6.48 + NIMS + fill @1.68
HIM LPW + SSI@ 94.56 + NIMS
HCJ LPW + SSI@ 77.76 + PWS @12.96 + NIMS + R/S @15.36 + fill @ 7.68
Note: "MPP", "MPW", "HPW", "MPR", "HIM", "HCJ" are already valid standard values.

IMG wants to add values “S&ER3”, “S&ER5”, and “S&ER5a” for Cassini telemetry modes implemented post-launch. The values indicate the pick-up rates in kilobits per second of the recording of science and housekeeping data for the following instruments (all modes support simultaneous downlink):

Mode	CAPS	CDA	INMS	MAG	MIMI	RPWS	CIRS	ISS	UVIS	VIMS
S&ER3	16	4.192	1.498	1.976	8	60.928	4	182.784	32.096	94.208
S&ER5	4	0.524	1.498	1.976	8	60.928	4	365.568	5.032	94.208
S&ER5a	4	0.524	1.498	1.976	8	60.928	4	304.64	5.032	94.208

Current Urgency:

Medium. These values are already in use.

Proposed Solution:

Change TELEMETRY_FORMAT_ID's Standard Value Type from STATIC to DYNAMIC and add the values above as new standard values.

Impact Assessment:

Describe the expected impact on existing standards documents, the Planetary Science Data Dictionary, and PDS tools. This includes things like breaking backwards compatibility, affecting current or past archiving activities, and the need for new development efforts.

PDS Standards Reference – none

Archive Preparation Guide – none

Proposer’s Archive Guide – none

Planetary Science Data Dictionary – Standard Value Type would change from STATIC to DYNAMIC..

PDS tools -- none. Vtool would no longer produce errors for this keyword.

Additional Information:

2009 Dawn/FC Framing Cameras, FC STANDARD DATA PRODUCTS AND ARCHIVE VOLUME SOFTWARE INTERFACE SPECIVICAIONT, October 21, 2009.

Requested Changes:

```
PDS_VERSION_ID                    = PDS3
LABEL_REVISION_NOTE               = "2003-11-25 BS(CN);
                                     2009-05-37 RChen (EN)"

OBJECT                            = ELEMENT_DEFINITION
  ELEMENT_NAME                    = "telemetry_format_id"
  BL_NAME                         = "tmtryfmtid"
  DESCRIPTION                     = "The TELEMETRY_FORMAT_ID element supplies
a telemetry format code."

  GENERAL_DATA_TYPE               = "IDENTIFIER"
  MAXIMUM                         = "N/A"
  MINIMUM                         = "N/A"
  MAXIMUM_LENGTH                  = "12"
  MINIMUM_LENGTH                  = "N/A"
  STANDARD_VALUE_TYPE             = "DYNAMIC"
  STANDARD_VALUE_SET_DESC         = "
For Galileo, standard values for Phase 1 (Cruise Operations) are:
0=LPB, 1=EHR, 2=BPB, 3=MPB, 4=XPW, 5=XCM, 6=XED, 7=XPB,
8=XPN, 9=XRW, 10=HPB, 11=HPJ, 12=HRW, 13=HCJ, 14=MPP,
15=MPR, 16=HPW, 17=HIM, 18=HCM, 19=LRS, 20=MPW, 21=PW8,
22=IM8, 23=AI8, 24=PW4, 25=IM4, 29=ESS, 30=ELS

For Galileo, standard values for Phase 2 (Jupiter Orbital Operations) are:
0=LPB, 1=EHR, 2=BPB, 3=LNR, 4=LPU, 5=HIS, 6=HMA, 7=HCA,
8=BPT, 9=BDT, 10=HPD, 11=HPJ, 12=HRW, 13=HCJ, 14=MPP,
15=MPR, 16=HPW, 17=HIM, 18=HCM, 19=LRS, 20=MPW, 21=PW8,
22=IM8, 23=AI8, 24=PW4, 25=IM4, 29=ESS, 30=ELS

Galileo Phase 2 telemetry formats defined by recording rate:
Format     Record Rate (Kbps)
-----------------------------------------------------------
LPW        7.68  - All instruments at their nominal rates
MPP        LPW + PWS@  19.2 + NIMS + fill @0.48
MPW        LPW + PWS@ 46.56 + NIMS + fill @0.48
HPW        LPW + PWS@ 94.56 + NIMS + fill @0.48
MPR        LPW + Probe@6.48 + NIMS + fill @1.68
HIM        LPW + SSI@ 94.56 + NIMS
HCJ        LPW + SSI@ 77.76 + PWS @12.96 + NIMS + R/S @15.36 + fill @ 7.68

The DAWN Framing Camera flight software determines the telemetry format. This
provides the version of the UDP library [flight software] which is loaded
into the instrument's NVRAM.
  302 = UDP library v. 3.02
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303 = UDP library v. 3.03
304 = UDP library v. 3.04

Cassini telemetry modes indicate the pick-up rate in kilobits per second of the recording of science and housekeeping data for the following instruments (all modes support simultaneous downlink)

Mode	CAPS	CDA	INMS	MAG	MIMI	RPWS	CIRS	ISS	UVIS	VIMS
S&ER3	16	4.192	1.498	1.976	8	60.928	4	182.784	32.096	94.208
S&ER5	4	0.524	1.498	1.976	8	60.928	4	365.568	5.032	94.208
S&ER5a	4	0.524	1.498	1.976	8	60.928	4	304.64	5.032	94.208

"

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  KEYWORD_DEFAULT_VALUE           = ""
  UNIT_ID                         = "none"
  SOURCE_NAME                     = "PDS IMAGE/S. Kazz"
  FORMATION_RULE_DESC             = ""
  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "AI8"
    COLUMN_VALUE_TYPE             = ""
    COLUMN_VALUE_NODE_ID          = ""
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "ALL"
    COLUMN_VALUE_TYPE             = ""
    COLUMN_VALUE_NODE_ID          = ""
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "BDT"
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "I"
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "BK5"
    COLUMN_VALUE_TYPE             = ""
    COLUMN_VALUE_NODE_ID          = ""
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "BPB"
    COLUMN_VALUE_TYPE             = ""
    COLUMN_VALUE_NODE_ID          = ""
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "BPT"
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "I"
    OUTPUT_FLAG                   = "Y"
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END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "EHR"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "ELS"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "ESS"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HCA"
  COLUMN_VALUE_TYPE             = "A"
  COLUMN_VALUE_NODE_ID          = "I"
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HCJ"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HCM"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HIM"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HIS"
  COLUMN_VALUE_TYPE             = "A"
  COLUMN_VALUE_NODE_ID          = "I"
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE
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OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HMA"
  COLUMN_VALUE_TYPE             = "A"
  COLUMN_VALUE_NODE_ID          = "I"
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HPB"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HPJ"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HPW"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "HRW"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "IM4"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "IM8"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "LNR"
  COLUMN_VALUE_TYPE             = "A"
  COLUMN_VALUE_NODE_ID          = "I"
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE
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OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "LPB"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "LPU"
  COLUMN_VALUE_TYPE             = "A"
  COLUMN_VALUE_NODE_ID          = "I"
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "LRS"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "MPB"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "MPP"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "MPR"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "MPW"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "PW4"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
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  COLUMN_VALUE                = "PW8"
  COLUMN_VALUE_TYPE           = ""
  COLUMN_VALUE_NODE_ID        = ""
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "RAW"
  COLUMN_VALUE_TYPE           = "A"
  COLUMN_VALUE_NODE_ID        = "U"
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "RCP"
  COLUMN_VALUE_TYPE           = "A"
  COLUMN_VALUE_NODE_ID        = "U"
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "RWR"
  COLUMN_VALUE_TYPE           = ""
  COLUMN_VALUE_NODE_ID        = ""
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "SCI"
  COLUMN_VALUE_TYPE           = ""
  COLUMN_VALUE_NODE_ID        = ""
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "SPT"
  COLUMN_VALUE_TYPE           = ""
  COLUMN_VALUE_NODE_ID        = ""
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "XCM"
  COLUMN_VALUE_TYPE           = ""
  COLUMN_VALUE_NODE_ID        = ""
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "XED"
  COLUMN_VALUE_TYPE           = ""
  COLUMN_VALUE_NODE_ID        = ""
  OUTPUT_FLAG                 = "Y"
END_OBJECT                    = ELEMENT_STANDARD_VALUE

OBJECT                        = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                = "XPB"
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  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "XPN"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "XPW"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "XRW"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "LPW"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "302"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "303"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "304"
  COLUMN_VALUE_TYPE             = ""
  COLUMN_VALUE_NODE_ID          = ""
  OUTPUT_FLAG                   = "Y"
END_OBJECT                      = ELEMENT_STANDARD_VALUE

OBJECT                          = ELEMENT_STANDARD_VALUE
  COLUMN_VALUE                  = "S&ER3"
  COLUMN_VALUE_TYPE             = ""
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    COLUMN_VALUE_NODE_ID          = ""
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "S&ER5"
    COLUMN_VALUE_TYPE             = ""
    COLUMN_VALUE_NODE_ID          = ""
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "S&ER5a"
    COLUMN_VALUE_TYPE             = ""
    COLUMN_VALUE_NODE_ID          = ""
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  SYSTEM_CLASSIFICATION_ID        = "COMMON"
  GENERAL_CLASSIFICATION_TYPE     = "IMAGING"
  CHANGE_DATE                     = "1992-07-15"
  STATUS_TYPE                     = "APPROVED"
  STANDARD_VALUE_OUTPUT_FLAG      = "Y"
  TEXT_FLAG                       = "N"
  TERSE_NAME                      = ""
  SQL_FORMAT                      = "CHAR(4)"
  BL_SQL_FORMAT                   = "char(4)"
  DISPLAY_FORMAT                  = "JUSTLEFT"
  AVAILABLE_VALUE_TYPE            = ""
END_OBJECT                        = ELEMENT_DEFINITION
END
```