Templates

Template = entity containing a.o. a Sequencer script, dealing with the setup and execution of one or more exposures of a particular type.

Components:

- template script: contains several SETUP commands, using a.o. *reference setup file*; accepts parameters, which determine the exact behaviour of the script and the exact values of some setup parameters (=> *template*);
- template signature file: a description of a template and its parameters (a.o. ranges and types), in *parameter file format* (cf. setup files)

for VCS: **Templates = Sequencer scripts** which comply to certain rules (e.g. for picking up and returning parameters)

```
#
#
#   Example Template script (for purposes of VLT SW Workshop - April 1999)
proc SOT02 {arrays reserved} {
    foreach array $arrays {
            upvar $array $array
    }

    checkAbortFlag;  # Check if in the meantime bob's ABORT button has been pressed

    set TPL(NEXP) $SEQ(NEXPO)

    tplLog "Greetings from SOT02 to the people attending the VLT SW workshop"

    # Timeout value (ms) for replies on commands to OS
    set timeout 10000

    #  send reference SETUP
    #  ID returned will be the for next exposure.
    set ID [sendCmd $timeout {SETUP -expoId 0 -file SOT02.ref}]

    #  setup DETector and INStrument
    sendCmd $timeout "SETUP -expoId $ID -function \
              DET.READ.SPEED $DET(READ.SPEED) \
              DET.WIN1.BINX  $DET(WIN1.BINX) \
              DET.WIN1.BINY  $DET(WIN1.BINY) \
              DET.WIN1.ST    $DET(WIN1.ST) \
              INS.OPTI1.ID   $INS(FILT1)"

    .....
     # Iterate for the number of exposures wanted
    for {set i 0} {$i < $SEQ(NEXPO)} {incr i} {
        ....
        sendCmd $timeout "SETUP -expoId $ID -function $ObsInfo"
        ...
                    # start the exposure
                    sendCmd $timeout START
            if {$abort} {error "ACK ABORT"}
            sendCmd $timeout WAIT
    }

    return {}
}
```

```
#
# Example template signature file (for VLT SW workshop)
#
PAF.HDR.START;        # Marks start of header
PAF.TYPE"Template";   # Type of parameter file
PAF.ID   "$Id: SOT02.tsf,v 1.32 1997/05/06 09:27:14 vltsccm Exp $";#File ID
...
PAF.HDR.END

TPL.INSTRUM  "SUSI";        # This is a template for SUSI
TPL.MODE     "";            # Not applicable for SUSI
TPL.VERSION  "0.1 alpha";   # (any string)
TPL.REFSUP   "SOT02.ref";   # Reference setup file
TPL.PRESEQ   "SOT02.seq";   # Sequencer script
TPL.GUI          "";        # GUI panel
TPL.TYPE     "science";     # science, calib, ...
TPL.EXECTIME "computed";    # can be "computed" or a number
TPL.OVERHEAD "1.0";         # Overhead factor (times exposure time)
TPL.RESOURCES    "filter";# List of param. names: req. resources

TPL.PARAM    "DET.READ.SPEED";
DET.READ.SPEED.TYPE   "keyword";
DET.READ.SPEED.RANGE  "slow normal fast";
DET.READ.SPEED.DEFAULT"normal";

TPL.PARAM             "DET.WIN1.BINX";
DET.WIN1.BINX.TYPE    "integer";
DET.WIN1.BINX.RANGE   "1 2 4 8";# 1-1, 1-2, 1-4, 1-8
DET.WIN1.BINX.DEFAULT "1";

TPL.PARAM                 "TEL.ROT.OFFANGLE";
TEL.ROT.OFFANGLE.TYPE     "number";
TEL.ROT.OFFANGLE.RANGE    "0..359.99"
TEL.ROT.OFFANGLE.DEFAULT  "0"

.....
```

Observation blocks

Observation Block (OB) = smallest schedulable observational unit for the VLT. Contains all information necessary to execute sequentially and without interruption a set of correlated exposures, involving a single telescope preset. Contains one or more template calls.

The contents of an OB is reflected by so-called Observation Block Description (OBD) in *parameter file format*. The OBD is the only part of the OB which arrives at the VCS side.

ICD VLT Control SW - Observation Handling

- **B**roker for **O**bservation **B**locks: process to fit the VCS into the Data Flow world
- BOB only needs part of the info contained in OBs and Templates.
- hides concepts like *Observation Block, Templates* from existing VLT Observation Software (OS) modules, which only know how to deal with a single exposure.

```
#
#   Example OBD (for purposes of VLT SW Workshop - April 1999)
PAF.HDR.START;                                   # Marks start of header
PAF.TYPE        "ObservationBlock description"; # Type of parameter file
...
PAF.HDR.END

OBS.ID  "1234";    # Observation block ID
OBS.NAME        "OB 0"; # Observation block name
OBS.GRP "";     # unused
OBS.PROG.ID     "58.B-0265(A)"; # Programme ID
OBS.PI-COI.NAME "Chavan"; # name of Principal- or Co-Investigator

# acquisition template SAT01
TPL.ID  "SAT01";        # name
TPL.NAME        "Target in field center and use guide star";    # description
TPL.SEQNO       "1";    # sequence number
TEL.TARG.ALPHA  "10000.00";     #
TEL.TARG.DELTA  "-70000.00";    #
TEL.TARG.EQUINOX        "2000"; #
TEL.TARG.PMA    "0";    #
TEL.TARG.PMD    "0";    #
....

# science template SOT02
TPL.ID  "SOT02";        # name
TPL.NAME        "Imaging in jitter mode";       # description
TPL.SEQNO       "2";    # sequence number
DET.READ.SPEED  "normal";       #
DET.WIN1.BINX   "1";    #
DET.WIN1.BINY   "1";    #
DET.WIN1.ST     "F";    #
DET.WIN1.STRX   "1";    #
DET.WIN1.STRY   "1";    #
DET.WIN1.NX     "1124"; #
DET.WIN1.NY     "1024"; #
TEL.ROT.OFFANGLE        "0";    #
INS.FILT1       "r#786";        #
SEQ.NEXPO       "2";    #
DET.WIN1.UIT1   "300";  #
TEL.TARG.OFFSETALPHA    "2";    #
TEL.TARG.OFFSETDELTA    "2";    #
```

VLT Control SW - Templates and Observation Blocks