

The logo for EOSS, consisting of the letters 'E', 'O', and 'S' in a stylized, white, sans-serif font. The 'E' and 'S' have a slight curve, and the 'O' is a simple circle. The logo is positioned in the upper right quadrant of the slide.

EOSS

A stylized sunburst or starburst graphic in a darker shade of blue, located on the left side of the slide. It has a central circular hub with several lines radiating outwards at various angles.

**On the Generation of SLR Output Files
at Mt Stromlo**

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Background



- Redevelopment of post processing facilities
- Adoption of XML technologies
 - *Process a pass raw data once to extract and store all useful data in one file.*
 - *Data then accessible to different users/platforms/locations.*
 - *Data subsets can be extracted for all report generations.*
 - *System changes have minimum impact on existing software.*
- Object oriented software allows addition of modules/data with minimal impact on existing code.
- Applications using XML files unaffected by subsequent changes.

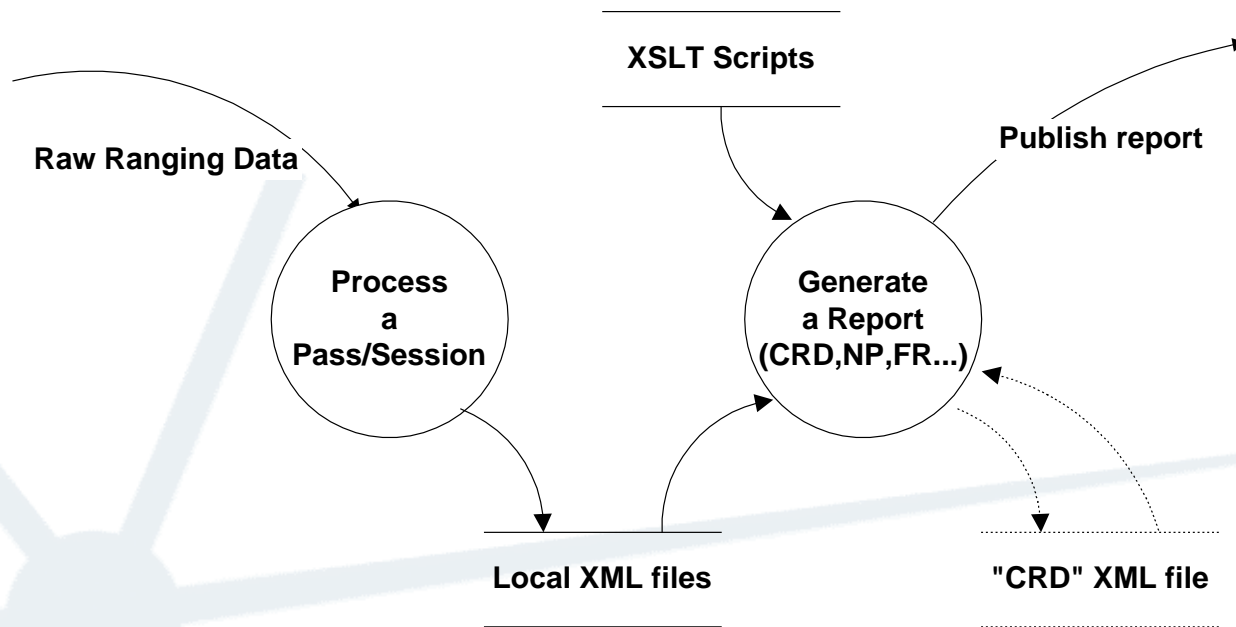
CRD Format



- Convergence of issues
- CRD compatibility with XML data
- Evolution of CRD to XML?
- Pilot test of current CRD format

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Progress and Examples



Local XML data files (80%)

CRD XML script (80%)

CRD script (80%)

NP script (80%) excluding engineering records

FR script (10%)

Local XML Output file



- <?xml version="1.0" encoding="UTF-8" standalone="no" ?>
- <eos:NormalPointAnalysis xmlns:eos="www.eos-aus.com">
- <System CdpOcc="7825" CdpPaddId="9001" CdpSys="7825" Height="805.027300" Lat="-35.316144" Location="Stromlo" Long="149.009880" Name="" Network="Stromlo" TimeScale="GPS">
- <Target CoM="0.000000" Cospar="7603901" NP_Index="7" Name="Lageos1" Norad="" SIC="1155" Type="1">
- <Session StartDay="02/09/2007" StartDoY="245" StartSecs="63769.000000000" StopDay="02/09/2007" StopSecs="66268.000000000">
- <SystemConfig>
- <Laser Divergence="1" FireRate="60" PulseEnergy="20.8" PulseWidth="10" Type="" Wavelength="532.00"/>
- <Detector DarkCount="0.0" Polarizer="0.0" PulseType="ECL" PulseWidth="0.0" QE="0.2" SpatialFilter="0.0" SpectralFilter="0.0" Type="CSPAD" Voltage="1.0" Wavelength="532.0"/>
- <Timer EpochDelay="1234" FreqSource="TrueTime OCXO" TimeSource="TrueTime XLi" Timer="MRCS" Type="TrueTime XLi"/>
- <FullRateData>
- <Segment StartDay="02/09/2007" StartSecond="63769.000000000" StopDay="02/09/2007" StopSecond="65750.000000000">
- <Enclosure Type="Typhoon" WindowDelay="0.000"/>
- <Shot day="02/09/2007" range="52213050.5666" refract="30.8446" resid="30.8583" sec="64244.133861271584"/>
- <Shot day="02/09/2007" range="52208081.7756" refract="30.8343" resid="30.7921" sec="64244.517194463719"/>
- <Shot day="02/09/2007" range="52149237.9706" refract="30.7133" resid="30.7179" sec="64249.067194471565"/>
- <Shot day="02/09/2007" range="52118727.6596" refract="30.6517" resid="30.6281" sec="64251.433861171885"/>
- <Shot day="02/09/2007" range="48599200.2936" refract="24.8795" resid="25.1249" sec="65538.800527866857"/>
- </Segment>
- <Segment StartDay="02/09/2007" StartSecond="66015.000000000" StopDay="02/09/2007" StopSecond="66268.000000000">
- <Enclosure Type="Typhoon" WindowDelay="0.000"/>
- </Segment>
- </FullRateData>
- <NormalPoints IntervalSecs="120.00">
- <NormalPoint Pmb="928.9" RH="50.6" TdegC="8.40" bin="538" day="02/09/2007" kurt="2.28" nTotal="375" nUsed="30" peak="0.1265" range="48093349.3261" rate="8.00" refract="23.9760" resid="-0.0525" rms="0.0595" sec="64644.883861271" skew="0.55"/>
- <NormalPoint Pmb="928.9" RH="51.5" TdegC="8.40" bin="539" day="02/09/2007" kurt="2.21" nTotal="973" nUsed="82" peak="0.0899" range="47475860.5050" rate="8.43" refract="23.1585" resid="0.0395" rms="0.0567" sec="64739.750527969" skew="0.17"/>
- <NormalPoint Pmb="928.9" RH="52.9" TdegC="8.40" bin="540" day="02/09/2007" kurt="2.37" nTotal="937" nUsed="85" peak="-0.0231" range="46906311.3528" rate="8.05" refract="22.3702" resid="-0.0114" rms="0.0432" sec="65220.883861265" skew="0.17"/>
- <NormalPoint Pmb="928.8" RH="51.3" TdegC="8.40" bin="544" day="02/09/2007" kurt="3.27" nTotal="831" nUsed="72" peak="0.0618" range="47249333.0238" rate="8.66" refract="22.9720" resid="0.0328" rms="0.0589" sec="65336.167194571" skew="0.81"/>
- <NormalPoint Pmb="928.9" RH="51.0" TdegC="8.40" bin="545" day="02/09/2007" kurt="1.92" nTotal="533" nUsed="38" peak="0.0939" range="47959689.6035" rate="7.13" refract="23.9489" resid="0.0371" rms="0.0653" sec="65455.033861166" skew="0.10"/>
- </NormalPoints>
- </SystemConfig>
- <ProcessOptions AmpCorrApplied="FALSE" COMApplied="FALSE" EpochEventType="Station Detector Receive" RangeDataType="2-way" RefractionApplied="FALSE" SDApplied="TRUE"/>
- <Mets>
- <MetData P="928.9" RH="51" T="8.3" day="02/09/2007" sec="63927.100527864888"/>
- <MetData P="928.8" RH="54" T="8.4" day="02/09/2007" sec="64271.967194471530"/>
- <MetData P="928.9" RH="51" T="8.3" day="02/09/2007" sec="64382.167194465299"/>
- <MetData P="928.9" RH="49" T="8.5" day="02/09/2007" sec="64497.817194462332"/>
- <MetData P="929.0" RH="51" T="8.8" day="02/09/2007" sec="64957.600527863156"/>
- <MetData P="929.0" RH="54" T="8.7" day="02/09/2007" sec="64982.750527970020"/>

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“CRD” XML File



- <?xml version="1.0"?>
- <crd xmlns:eos="www.eos-aus.com">
- <format record_type="H1" version="0.26" year="2007" month="09" day="02" hour="17" minute="42">
- <!--Station Header-->
- <station record_type="H2" station_name="Stromlo" cdppad_id="9001" cdp_sys="7825" timescale="GPS">
- <!--Target Header-->
- <target record_type="H3" epoch="" name="Lageos1" cospar_id="7603901" sic="1155" norad_id="" />
- <!--Unique Laser Records-->
- <Laser unique_id="IDAEBEPB" Divergence="1" FireRate="60" PulseEnergy="20.8" PulseWidth="10" Type="" Wavelength="532.00" />
- <!--Unique Detector Records-->
- <Detector unique_id="IDALBEPB" DarkCount="0.0" Polarizer="0.0" PulseType="ECL" PulseWidth="0.0" QE="0.2" SpatialFilter="0.0" SpectralFilter="0.0" Type="CSPAD" Voltage="1.0" Wavelength="532.0" />
- <!--Unique Timer Records-->
- <Timer unique_id="IDAWBEPB" EpochDelay="1234" FreqSource="TrueTime OCXO" TimeSource="TrueTime XLi" Timer="MRCS" Type="TrueTime XLi" />
- <!--Unique Configuration Records-->
- <system_configuration_record unique_id="IDADBEPB" record_type="C0" wavelength="532.0">
- <component laser_id="IDAEBEPB" detector_id="IDALBEPB" timer_id="IDAWBEPB" />
- </system_configuration_record>
- <!--Session Header (Full Rate)-->
- <session record_type="H4" data_type="0" start_year="2007" start_month="09" start_day="02" start_hour="17" start_minute="42" start_second="49" end_year="2007" end_month="09" end_day="02" end_hour="18" end_minute="24" end_second="28">
- <ProcessOptions AmpCorrApplied="FALSE" COMApplied="FALSE" EpochEventType="Station Detector Receive" RangeDataType="2-way" RefractionApplied="FALSE" SDApplied="TRUE" />
- <segment starting_year="2007" starting_month="09" starting_day="02" start_hour="17" start_minute="42" start_second="49" end_year="2007" end_month="09" end_day="02" end_hour="18" end_minute="15" end_second="50">
- <data record_type="10" epoch_event="0" unique_config_id="IDADBEPB" fire_time="64244.133861271584" range="52213050.5666" />
- <data record_type="10" epoch_event="0" unique_config_id="IDADBEPB" fire_time="64244.517194463719" range="52208081.7756" />
- <data record_type="10" epoch_event="0" unique_config_id="IDADBEPB" fire_time="64246.900527871498" range="52177228.2606" />
- <data record_type="10" epoch_event="0" unique_config_id="IDADBEPB" fire_time="64251.433861171885" range="52118727.6596" />
- <data record_type="10" epoch_event="0" unique_config_id="IDADBEPB" fire_time="64253.583861168125" range="52091068.4986" />
- <data record_type="10" epoch_event="0" unique_config_id="IDADBEPB" fire_time="64297.317194469149" range="51540587.9436" />
- <MetData P="928.9" RH="55" T="8.3" day="02/09/2007" sec="65557.000527967641" />
- <MetData P="928.8" RH="52" T="8.7" day="02/09/2007" sec="66161.983861171568" />
- </Mets>
- <!--NormalPoints-->
- <NormalPoints IntervalSecs="120.00">
- <normal_point record_type="11" seconds="64644.883861271" range="48093349.3261" unique_config_id="IDADBEPB" EpochEvents="0" WindowLength="120.00" RawRanges="30" BinRMS="0.0595" BinSkew="0.55" BinKurtosis="2.28" ReturnRate="8.00" />
- <normal_point record_type="11" seconds="64739.750527969" range="47475860.5050" unique_config_id="IDADBEPB" EpochEvents="0" WindowLength="120.00" RawRanges="82" BinRMS="0.0567" BinSkew="0.17" BinKurtosis="2.21" ReturnRate="8.43" />
- <normal_point record_type="11" seconds="64862.300527868" range="46906311.3528" unique_config_id="IDADBEPB" EpochEvents="0" WindowLength="120.00" RawRanges="85" BinRMS="0.0419" BinSkew="0.34" BinKurtosis="2.37" ReturnRate="9.07" />
- <normal_point record_type="11" seconds="64975.783861169" range="46617171.9367" unique_config_id="IDADBEPB" EpochEvents="0" WindowLength="120.00" RawRanges="87" BinRMS="0.0535" BinSkew="0.70" BinKurtosis="3.52" ReturnRate="10.26" />
- <normal_point record_type="11" seconds="65105.883861272" range="46574026.5716" unique_config_id="IDADBEPB" EpochEvents="0" WindowLength="120.00" RawRanges="70" BinRMS="0.0428" BinSkew="-0.04" BinKurtosis="2.23" ReturnRate="7.54" />

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XSLT Script to create CRD file



```
• <xsl:transform version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform" xmlns:eos="www.eos-aus.com">
•   <xsl:output method="text" version="1.0" indent="no" />
•
•   <xsl:template match="/">
•     <xsl:apply-templates />
•   </xsl:template>
•
•   <xsl:template match="crd">
•     <xsl:apply-templates />
•   </xsl:template>
•
•   <!--
•     1.1 Format Header
•     The format header describes information relating to the file: e.g. the version of the format used, time of production etc.
•   -->
•   <xsl:template match="format">H1 CRD <xsl:value-of select="concat(@version, ', ', @year, ', ', @month, ', ', @day, ', ', @hour, ', ', @minute)" />
•     <xsl:apply-templates />
•   </xsl:template>
•
•   <!--
•     1.2 Station Header
•     The station header describes information relating to the station or site collecting this laser data.
•   -->
•   <xsl:template match="station">
•     H2 <xsl:call-template name="append_pad">
•       <xsl:with-param name="padVar" select="@station_name" />
•       <xsl:with-param name="length" select="10" />
•     </xsl:call-template><xsl:text> </xsl:text>
•     <xsl:value-of select="@cdppad_id" /> 90 01 4<xsl:apply-templates select="target" />
•     <xsl:apply-templates select="session" />
•     <!--
•       <xsl:apply-templates select="system_configuration_record" />
•       <xsl:apply-templates select="*[(self::session | self::target | self::system_configuration_record)]" />
•       <xsl:apply-templates select="zsession/segment/data" />
•     -->
•   </xsl:template>
•
•   <!--
•     1.3 Target Header
•     The target header describes static information relating to the target, whether it is a satellite, lunar or spacecraft target.
•   -->
•   <xsl:template match="target">
•     H3 <xsl:call-template name="append_pad">
```

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Sample CRD Report



- H2 Stromlo 9001 90 01 4
- H3 Lageos1 7603901 1155 0
- H4 0 2007 09 02 17 42 49 2007 09 02 18 24 28 0 1 0 0 1 0 2
- C0 0 532.0 IDADBEPB IDAEBEPB IDALBEPB IDAWBEPB
- C1 0 IDAEBEPB Nd-Yag 532.00 60 20.8 10 1 -1
- C2 0 IDALBEPB CSPAD 532.0 0.2 1.0 0.0 ECL 0.0 0.0 -1 0.0 -1
- C3 0 IDAWBEPB TrueTime XLi TrueTime OCXO TrueTime XLi -1 -1
- 20 63927.100527864888 928.9 281.45 51
- 20 64271.967194471530 928.8 281.55 54
- 20 64382.167194465299 928.9 281.45 51
- 20 64497.817194462332 928.9 281.65 49
- 20 64957.600527863156 929.0 281.95 51
- 20 65472.817194563897 928.9 281.65 53
- 20 65557.000527967641 928.9 281.45 55
- 20 65682.617194564285 928.9 281.15 58
- 20 66034.117194469422 928.8 281.65 49
- 20 66161.983861171568 928.8 281.85 52
- 10 64244.133861271584 52213050.5666 IDADBEPB 0 2 0
- 10 64244.517194463719 52208081.7756 IDADBEPB 0 2 0
- 10 64246.900527871498 52177228.2606 IDADBEPB 0 2 0
- 10 64247.033861170508 52175504.1006 IDADBEPB 0 2 0
- 10 64253.583861168125 52091068.4986 IDADBEPB 0 2 0
- 10 64297.317194469149 51540587.9436 IDADBEPB 0 2 0
- 10 65536.250527972050 48578101.9036 IDADBEPB 0 2 0
- 10 65538.800527866857 48599200.2936 IDADBEPB 0 2 0
- 11 64644.883861271 48093349.3261 IDADBEPB 2 120.00 30 0.0595 0.55 2.28 0 8.00
- 11 64739.750527969 47475860.5050 IDADBEPB 2 120.00 82 0.0567 0.17 2.21 0 8.43
- 11 64862.300527868 46906311.3528 IDADBEPB 2 120.00 85 0.0419 0.34 2.37 0 9.07
- 11 64975.783861169 46617171.9367 IDADBEPB 2 120.00 87 0.0535 0.70 3.52 0 10.26
- 11 65105.883861272 46574026.5716 IDADBEPB 2 120.00 70 0.0428 -0.04 2.23 0 7.54
- 11 65220.883861265 46792727.7710 IDADBEPB 2 120.00 66 0.0432 0.17 2.13 0 8.05
- 11 65336.167194571 47249333.0238 IDADBEPB 2 120.00 72 0.0589 0.81 3.27 0 8.66
- 11 65455.033861166 47959689.6035 IDADBEPB 2 120.00 38 0.0653 0.10 1.92 0 7.13
- H8
- H9

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File Sizes

- Local XML Data 100 KB
-
- CRD XML Data 150 KB
- CRD File 60KB

- (10% when compressed)