

TMT IRMOS Work Breakdown Structure (WBS)

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Principles invoked here:

Organize WBS in a way that facilitates I&T (e.g. consider MOAO as a work package)

Most motion control handled by the MOAO Supervisory Controller

Convention is to use 5 letter abbreviations for software deliverables

WBS Level	WBS Number	Title
	4 TMT.INS.INST.IRMOS	IRMOS
	5 TMT.INS.INST.IRMOS.MAN	IRMOS Management
	5 TMT.INS.INST.IRMOS.SYS	IRMOS Systems Engineering
	5 TMT.INS.INST.IRMOS.RLAY	IRMOS Offner Relay
	6 TMT.INS.INST.IRMOS.RLAY.SYS	IRMOS Offner Relay Systems Engineering
	6 TMT.INS.INST.IRMOS.RLAY.ENCL	IRMOS Offner Relay Enclosure
	7 TMT.INS.INST.IRMOS.RLAY.ISL	IRMOS Offner Relay Enclosure Insulation
	7 TMT.INS.INST.IRMOS.RLAY.CPR	IRMOS Offner Relay Enclosure Compressor
	7 TMT.INS.INST.IRMOS.RLAY.SAF	IRMOS Offner Relay Enclosure Safety System
	6 TMT.INS.INST.IRMOS.RLAY.STR	IRMOS Offner Relay Structure
	6 TMT.INS.INST.IRMOS.RLAY.WIN	IRMOS Offner Relay Entrance Window
	7 TMT.INS.INST.IRMOS.RLAY.WIN.WIN	IRMOS Offner Relay Entrance Window Window
	7 TMT.INS.INST.IRMOS.RLAY.WIN.MNT	IRMOS Offner Relay Entrance Window Window Mount
	7 TMT.INS.INST.IRMOS.RLAY.WIN.CON	IRMOS Offner Relay Entrance Window Condensation Mitigation
	6 TMT.INS.INST.IRMOS.RLAY.M4	IRMOS Offner Relay M4 Fold Mirror
	7 TMT.INS.INST.IRMOS.RLAY.M4.MIR	IRMOS Offner Relay M4 Fold Mirror Mirror
	7 TMT.INS.INST.IRMOS.RLAY.M4.MNT	IRMOS Offner Relay M4 Fold Mirror Mirror Mount
	6 TMT.INS.INST.IRMOS.RLAY.M5/7	IRMOS Offner Relay M5/7 Sphere
	7 TMT.INS.INST.IRMOS.RLAY.M5/7.MIR	IRMOS Offner Relay M5/7 Sphere Mirror
	7 TMT.INS.INST.IRMOS.RLAY.M5/7.MNT	IRMOS Offner Relay M5/7 Sphere Mirror Mount
	6 TMT.INS.INST.IRMOS.RLAY.DIC	IRMOS Offner Relay Dichroic
	7 TMT.INS.INST.IRMOS.RLAY.DIC.MIR	IRMOS Offner Relay Dichroic Dichroic Mirror
	7 TMT.INS.INST.IRMOS.RLAY.DIC.CEL	IRMOS Offner Relay Dichroic Mirror Cell
	7 TMT.INS.INST.IRMOS.RLAY.DIC.CWT	IRMOS Offner Relay Dichroic Mirror Counterweights
	7 TMT.INS.INST.IRMOS.RLAY.DIC.MOT	IRMOS Offner Relay Dichroic Mirror Motor
	7 TMT.INS.INST.IRMOS.RLAY.DIC.STR	IRMOS Offner Relay Dichroic Support Structure
	6 TMT.INS.INST.IRMOS.RLAY.IT	IRMOS Offner Relay Integration and Testing
	5 TMT.INS.INST.IRMOS.MOAO	IRMOS MOAO
	6 TMT.INS.INST.IRMOS.MOAO.SYS	IRMOS MOAO Systems Engineering
	6 TMT.INS.INST.IRMOS.MOAO.M6DM	IRMOS MOAO M6 Deformable Mirror
	7 TMT.INS.INST.IRMOS.MOAO.M6DM.MIR	IRMOS MOAO M6 Deformable Mirror Mirror
	7 TMT.INS.INST.IRMOS.MOAO.M6DM.MNT	IRMOS MOAO M6 Deformable Mirror Mirror Mount
	7 TMT.INS.INST.IRMOS.MOAO.M6DM.DRV	IRMOS MOAO M6 Deformable Mirror Drive Electronics
	6 TMT.INS.INST.IRMOS.MOAO.M6TT	IRMOS MOAO M6 Tip/Tilt Stage
	7 TMT.INS.INST.IRMOS.MOAO.M6TT.MIR	IRMOS MOAO M6 Tip/Tilt Stage Mirror
	7 TMT.INS.INST.IRMOS.MOAO.M6TT.MNT	IRMOS MOAO M6 Tip/Tilt Stage Mirror Mount
	7 TMT.INS.INST.IRMOS.MOAO.M6TT.ACT	IRMOS MOAO M6 Tip/Tilt Stage Actuators
	7 TMT.INS.INST.IRMOS.MOAO.M6TT.DRV	IRMOS MOAO M6 Tip/Tilt Stage Drive Electronics
	7 TMT.INS.INST.IRMOS.MOAO.M6TT.STR	IRMOS MOAO M6 Tip/Tilt Stage Support Structure
	6 TMT.INS.INST.IRMOS.RLAY.M6ME	IRMOS Offner Relay M6 Real Time Metrology
	7 TMT.INS.INST.IRMOS.RLAY.M6ME.SRC	IRMOS Offner Relay M6 Real Time Metrology Source
	7 TMT.INS.INST.IRMOS.RLAY.M6ME.CAM	IRMOS Offner Relay M6 Real Time Metrology Camera
	6 TMT.INS.INST.IRMOS.MOAO.M11	IRMOS MOAO M11 Deformable Mirror
	7 TMT.INS.INST.IRMOS.MOAO.M11.MIR	IRMOS MOAO M11 Deformable Mirror Mirror
	7 TMT.INS.INST.IRMOS.MOAO.M11.MNT	IRMOS MOAO M11 Deformable Mirror Mirror Mount
	7 TMT.INS.INST.IRMOS.MOAO.M11.DRV	IRMOS MOAO M11 Deformable Mirror Drive Electronics
	6 TMT.INS.INST.IRMOS.MOAO.LGSW	IRMOS MOAO Laser Guide Star Wavefront Sensor
	7 TMT.INS.INST.IRMOS.MOAO.LGSW.OPT	IRMOS MOAO Laser Guide Star Wavefront Sensor Zoom Optics
	7 TMT.INS.INST.IRMOS.MOAO.LGSW.LA	IRMOS MOAO Laser Guide Star Wavefront Sensor Lenslet Array
	7 TMT.INS.INST.IRMOS.MOAO.LGSW.CAM	IRMOS MOAO Laser Guide Star Wavefront Sensor Camera
	6 TMT.INS.INST.IRMOS.MOAO.NGSW	IRMOS MOAO Natural Guide Star Wavefront Sensor
	7 TMT.INS.INST.IRMOS.MOAO.NGSW.OPT	IRMOS MOAO Natural Guide Star Wavefront Sensor Optics
	7 TMT.INS.INST.IRMOS.MOAO.NGSW.LA	IRMOS MOAO Natural Guide Star Wavefront Sensor Lenslet Array
	7 TMT.INS.INST.IRMOS.MOAO.NGSW.DM	IRMOS MOAO Natural Guide Star Wavefront Sensor Deformable Mirror
	7 TMT.INS.INST.IRMOS.MOAO.NGSW.CAM	IRMOS MOAO Natural Guide Star Wavefront Sensor Camera
	6 TMT.INS.INST.IRMOS.MOAO.SUP	IRMOS MOAO Supervisory Controller
	7 TMT.INS.INST.IRMOS.MOAO.SUP.COM	IRMOS MOAO Supervisory Controller Computer
	7 TMT.INS.INST.IRMOS.MOAO.SUP.MOTCO	IRMOS MOAO Supervisory Controller Motion Controller
	7 TMT.INS.INST.IRMOS.MOAO.SUP.ENVCO	IRMOS MOAO Supervisory Controller Environment Controller
	7 TMT.INS.INST.IRMOS.MOAO.SUP.LGSFI	IRMOS MOAO Supervisory Controller LGSF Interface
	7 TMT.INS.INST.IRMOS.MOAO.SUP.TCSIF	IRMOS MOAO Supervisory Controller TCS Interface
	6 TMT.INS.INST.IRMOS.MOAO.RTC	IRMOS MOAO Real Time Controller
	7 TMT.INS.INST.IRMOS.MOAO.RTC.COM	IRMOS MOAO Real Time Controller Computer
	7 TMT.INS.INST.IRMOS.MOAO.RTC.CENTR	IRMOS MOAO Real Time Controller Centroider
	7 TMT.INS.INST.IRMOS.MOAO.RTC.TOMRE	IRMOS MOAO Real Time Controller Tomographic Reconstructor
	7 TMT.INS.INST.IRMOS.MOAO.RTC.SERVO	IRMOS MOAO Real Time Controller Servo
	7 TMT.INS.INST.IRMOS.MOAO.RTC.TEL	IRMOS MOAO Real Time Controller Telemetry System
	6 TMT.INS.INST.IRMOS.MOAO.PSFM	IRMOS MOAO Point Spread Function Monitor
	7 TMT.INS.INST.IRMOS.MOAO.PSFM.MIR	IRMOS MOAO Point Spread Function Monitor Mirrors
	7 TMT.INS.INST.IRMOS.MOAO.PSFM.MNT	IRMOS MOAO Point Spread Function Monitor Mirror Mounts
	7 TMT.INS.INST.IRMOS.MOAO.PSFM.CAM	IRMOS MOAO Point Spread Function Monitor Camera
	6 TMT.INS.INST.IRMOS.MOAO.IT	IRMOS MOAO Integration and Testing
	5 TMT.INS.INST.IRMOS.OSM	IRMOS Object Selection Mechanism
	6 TMT.INS.INST.IRMOS.OSM.SE	IRMOS Object Selection Mechanism Systems Engineering
	6 TMT.INS.INST.IRMOS.OSM.STR	IRMOS Object Selection Mechanism Structure
	6 TMT.INS.INST.IRMOS.OSM.TA	IRMOS Object Selection Mechanism Tile Array
	7 TMT.INS.INST.IRMOS.OSM.TA.MIR	IRMOS Object Selection Mechanism Tile Array Macro Mirrors

7 TMT.INS.INST.IRMOS.OSM.TA.MNT	IRMOS Object Selection Mechanism Tile Array Macro Mirror Mounts
7 TMT.INS.INST.IRMOS.OSM.TA.MOT	IRMOS Object Selection Mechanism Tile Array Macro Mirror Motors
7 TMT.INS.INST.IRMOS.OSM.TA.MMIR	IRMOS Object Selection Mechanism Tile Array Mini Mirrors
7 TMT.INS.INST.IRMOS.OSM.TA.MMNT	IRMOS Object Selection Mechanism Tile Array Mini Mirror Mounts
7 TMT.INS.INST.IRMOS.OSM.TA.MMOT	IRMOS Object Selection Mechanism Tile Array Mini Mirror Motors
7 TMT.INS.INST.IRMOS.OSM.TA.ENC	IRMOS Object Selection Mechanism Tile Array Mini Mirror Encoders
7 TMT.INS.INST.IRMOS.OSM.TA.FMIR	IRMOS Object Selection Mechanism Tile Array Faceted Micro Mirror
6 TMT.INS.INST.IRMOS.OSM.SM	IRMOS Object Selection Mechanism Steering Mirror
7 TMT.INS.INST.IRMOS.OSM.SM.MIR	IRMOS Object Selection Mechanism Steering Mirror Mirror
7 TMT.INS.INST.IRMOS.OSM.SM.MNT	IRMOS Object Selection Mechanism Steering Mirror Mirror Mount
7 TMT.INS.INST.IRMOS.OSM.SM.STG	IRMOS Object Selection Mechanism Steering Mirror Stage
6 TMT.INS.INST.IRMOS.OSM.PARM	IRMOS Object Selection Mechanism Paraboloid Mirror
7 TMT.INS.INST.IRMOS.OSM.PARM.MIR	IRMOS Object Selection Mechanism Paraboloid Mirror Mirror
7 TMT.INS.INST.IRMOS.OSM.PARM.MNT	IRMOS Object Selection Mechanism Paraboloid Mirror Mirror Mount
6 TMT.INS.INST.IRMOS.OSM.IT	IRMOS Object Selection Mechanism Integration and Testing
5 TMT.INS.INST.IRMOS.SPEC	IRMOS Spectrograph
6 TMT.INS.INST.IRMOS.SPEC.SE	IRMOS Spectrograph Systems Engineering
6 TMT.INS.INST.IRMOS.SPEC.STR	IRMOS Spectrograph Structure
6 TMT.INS.INST.IRMOS.SPEC.OBJM	IRMOS Spectrograph Object Magnifier
7 TMT.INS.INST.IRMOS.SPEC.OBJM.WHL	IRMOS Spectrograph Object Magnifier Wheel
7 TMT.INS.INST.IRMOS.SPEC.OBJM.MIR	IRMOS Spectrograph Object Magnifier Mirrors
7 TMT.INS.INST.IRMOS.SPEC.OBJM.MNT	IRMOS Spectrograph Object Magnifier Mirror Mounts
6 TMT.INS.INST.IRMOS.SPEC.IMSL	IRMOS Spectrograph Image Slicer
7 TMT.INS.INST.IRMOS.SPEC.IMSL.OPT	IRMOS Spectrograph Image Slicer Optic
7 TMT.INS.INST.IRMOS.SPEC.IMSL.MNT	IRMOS Spectrograph Image Slicer Optic Mount
6 TMT.INS.INST.IRMOS.SPEC.COL	IRMOS Spectrograph Collimator
7 TMT.INS.INST.IRMOS.SPEC.COL.OPT	IRMOS Spectrograph Collimator Optics
7 TMT.INS.INST.IRMOS.SPEC.COL.MNT	IRMOS Spectrograph Collimator Optics Mounts
6 TMT.INS.INST.IRMOS.SPEC.FIL	IRMOS Spectrograph Filter Wheel
7 TMT.INS.INST.IRMOS.SPEC.FIL.OPT	IRMOS Spectrograph Filter Wheel Optics
7 TMT.INS.INST.IRMOS.SPEC.FIL.MNT	IRMOS Spectrograph Filter Wheel Optics Mounts
7 TMT.INS.INST.IRMOS.SPEC.FIL.WHL	IRMOS Spectrograph Filter Wheel Wheel
6 TMT.INS.INST.IRMOS.SPEC.GRA	IRMOS Spectrograph Grating
7 TMT.INS.INST.IRMOS.SPEC.GRA.OPT	IRMOS Spectrograph Grating Optic
7 TMT.INS.INST.IRMOS.SPEC.GRA.MNT	IRMOS Spectrograph Grating Optic Mount
7 TMT.INS.INST.IRMOS.SPEC.GRA.WHL	IRMOS Spectrograph Grating Wheel
6 TMT.INS.INST.IRMOS.SPEC.CAM	IRMOS Spectrograph Camera
7 TMT.INS.INST.IRMOS.SPEC.CAM.OPT	IRMOS Spectrograph Camera Optics
7 TMT.INS.INST.IRMOS.SPEC.CAM.MNT	IRMOS Spectrograph Camera Optics Mounts
6 TMT.INS.INST.IRMOS.SPEC.DET	IRMOS Spectrograph Detector
7 TMT.INS.INST.IRMOS.SPEC.DET.ARR	IRMOS Spectrograph Detector Array
7 TMT.INS.INST.IRMOS.SPEC.DET.MNT	IRMOS Spectrograph Detector Mount
7 TMT.INS.INST.IRMOS.SPEC.DET.CON	IRMOS Spectrograph Detector Controller
6 TMT.INS.INST.IRMOS.SPEC.CAL	IRMOS Spectrograph Calibration Unit
7 TMT.INS.INST.IRMOS.SPEC.CAL.ARC	IRMOS Spectrograph Calibration Unit Arc Lamps
7 TMT.INS.INST.IRMOS.SPEC.CAL.ISP	IRMOS Spectrograph Calibration Unit Integrating Sphere
6 TMT.INS.INST.IRMOS.SPEC.SUC	IRMOS Spectrograph Supervisory Controller
6 TMT.INS.INST.IRMOS.SPEC.DH	IRMOS Spectrograph Data Handling
7 TMT.INS.INST.IRMOS.SPEC	IRMOS Spectrograph Quick Look
7 TMT.INS.INST.IRMOS.SPEC.DH.ARCHI	IRMOS Spectrograph Data Handling Archive
6 TMT.INS.INST.IRMOS.SPEC.IT	IRMOS Spectrograph Integration and Testing
5 TMT.INS.INST.IRMOS.AMS	IRMOS Acquisition and Metrology System
6 TMT.INS.INST.IRMOS.AMS.SE	IRMOS Acquisition and Metrology System Systems Engineering
6 TMT.INS.INST.IRMOS.AMS.BAR	IRMOS Acquisition and Metrology System Barrel
6 TMT.INS.INST.IRMOS.AMS.ILL	IRMOS Acquisition and Metrology System Illuminator
6 TMT.INS.INST.IRMOS.AMS.MIR	IRMOS Acquisition and Metrology System Mirrors
6 TMT.INS.INST.IRMOS.AMS.MNT	IRMOS Acquisition and Metrology System Mirror Mounts
6 TMT.INS.INST.IRMOS.AMS.CAM	IRMOS Acquisition and Metrology System Camera
6 TMT.INS.INST.IRMOS.AMS.SUC	IRMOS Acquisition and Metrology System Supervisory Controller
6 TMT.INS.INST.IRMOS.AMS.IT	IRMOS Acquisition and Metrology System Integration and Testing
5 TMT.INS.INST.IRMOS.STIM	IRMOS Stimulus
6 TMT.INS.INST.IRMOS.STIM.SE	IRMOS Stimulus Systems Engineering
6 TMT.INS.INST.IRMOS.STIM.ENCL	IRMOS Stimulus Enclosure
6 TMT.INS.INST.IRMOS.STIM.LGSS	IRMOS Stimulus LGS Simulator
6 TMT.INS.INST.IRMOS.STIM.NGSS	IRMOS Stimulus NGS Simulator
6 TMT.INS.INST.IRMOS.STIM.TURB	IRMOS Stimulus Turbulence Generator
6 TMT.INS.INST.IRMOS.STIM.SLD	IRMOS Stimulus Slide
6 TMT.INS.INST.IRMOS.STIM.IT	IRMOS Stimulus Integration and Testing
5 TMT.INS.INST.IRMOS.IROT	IRMOS Instrument Rotator
6 TMT.INS.INST.IRMOS.IROT.SE	IRMOS Instrument Rotator Systems Engineering
6 TMT.INS.INST.IRMOS.IROT.ROT	IRMOS Instrument Rotator Rotation Stage
6 TMT.INS.INST.IRMOS.IROT.NASI	IRMOS Instrument Rotator Nasmyth Platform Interface
6 TMT.INS.INST.IRMOS.IROT.SUC	IRMOS Instrument Rotator Supervisory Controller
7 TMT.INS.INST.IRMOS.IROT.SUC.COM	IRMOS Instrument Rotator Supervisory Controller Computer
7 TMT.INS.INST.IRMOS.IROT.SUC.MOTCO	IRMOS Instrument Rotator Supervisory Controller Motion Controller
6 TMT.INS.INST.IRMOS.IROT.IT	IRMOS Instrument Rotator Integration and Testing
5 TMT.INS.INST.IRMOS.IT	IRMOS System Integration and Testing
6 TMT.INS.INST.IRMOS.IT.SCR	IRMOS System Integration and Testing OSM Calibration Screen
5 TMT.INS.INST.IRMOS.COMM	IRMOS Commissioning
6 TMT.INS.INST.IRMOS.COMM.FRE	IRMOS Commissioning Freight
6 TMT.INS.INST.IRMOS.COMM.INS	IRMOS Commissioning Insurance