Ministry of Defence

Contract Number: 701478374

PROJECT SOCIETAS

APPENDIX 1 to Schedule 2.1

SQEP Competency Frameworks

This document is broken down into the following sections:

1.1 Guidance

2.1 EOB Analyst: Competency Framework

3.1 Radar Modeller: Competency Framework
3.2 Radar Modeller: Supporting Information

4.1 Intercept Modeller: Competency Framework
4.2 Intercept Modeller: Supporting Information

5.1 STIM Engineer: Competency Framework
5.2 STIM Engineer: Supporting Information

6.1 Reprogrammer: Competency Framework
6.2 Reprogrammer: Supporting Information

7.1 Test Modeller: Competency Framework
7.2 Test Modeller: Supporting Information

8.1 Portal Developer: Competency Framework
8.2 Portal Developer: Supporting Information

9.1 IT Ops Engineer - UNIX Specialism: Competency Framework
9.2 IT Ops Engineer – UNIX Specialism: Supporting Information

10.1 IT Ops Engineer – PC LAN Specialism: Competency Framework
10.2 IT Ops Engineer – PC Lan Specialism: Supporting Information

11.1 IT Ops Engineer – Windows Specialism: Competency Framework
11.2 IT Ops Engineer – Windows Specialism: Supporting Information

12.1 Change Manager: Competency Framework
12.2 Change Manager: Supporting Information

13.1 IT Software Tester: Competency Framework
13.2 IT Software Tester: Supporting Information

14.1 Glossary of acronyms

1.1 Guidance

Competency frameworks are presented in the following format:

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role
Level 4 Expert	**4G**	This left-hand column articulates the minimum requirements needed for a person to enter into the JEWOSC at a specific level of a job role. All of the requirements in a box (1A, 2C, 3E or 4G) must be met to enter into the JEWOSC at that specified level.	**4H**	This right-hand column articulates the competencies that a SQEP needs to demonstrate when in post at a particular level. This is the column against which KPI performance will be reviewed.
Level 3 Practitioner	**3E**		**3F**	
Level 2 Supervised Practitioner	**2C**		**2D**	
Level 1 In Training	**1A**		**1B**	

Unless specified, all competencies are expected to be undertaken without supervision.

Terms in bold are defined in the corresponding Supporting Information page, where relevant.

2.1 EOB Analyst: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level 4 Expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 5+ years of relevant land, air, maritime or weapons EOB Analyst experience, including 1 year of experience assuring data outputs
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert understanding of all EOB tasks:
				  • Able to quality assure all data outputs
				  • Able to create all database entries and update existing database entries
				  • Able to demonstrate expert ability in developing new tools and processes through developing working instructions and on job training packages
				Stakeholder/Customer Experience
				• Able to lead cross-team working to achieve a streamlined yet operationally effective database
				• Able to represent the department at external agency conferences, meetings, and workshops

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ years of relevant land, air, maritime or weapons EOB Analyst experience
		• Has demonstrated good understanding of EOB tasks:
		  • Has used GALE (land), THURBON, JEWOSC portal and functional areas throughout the end-to-end EOB processes
		Theoretical Understanding
		• Has typically completed supplementary training courses related to their specialism:
		  • Land: GALE and/or MIDB on job training, JEWOSC portal training,
		  • Air: Foundation Air Weapons Course, DLE course: Foundation Air Electronic Warfare Course (FAEWC)
		  • Maritime: Completed relevant JEWOSC based training (if available)
		  • Weapons: Completed relevant JEWOSC based training (if available)
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced understanding of EOB tasks:
				  • Able to quality assure data outputs
				  • Able to create database entries and update existing database entries
				Stakeholder/Customer Experience
				• Able to liaise with other teams (EOB and JEWOSC) to ensure best practice across teams
				• Able to supervise the training and development of team members

Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has at least 6+ months of relevant EOB Analyst experience
		• Has demonstrated simple understanding of EOB tasks:
		  • Has updated new database entries, under supervision
		  • Has demonstrated competence in THURBON by the editing, creating and deletion of entries, under supervision
		Theoretical Understanding:
		• Has completed THURBON user training
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good understanding of EOB tasks:
				  • Able to conduct research on emitters using available intelligence sources in order to carry out updates to land, air and maritime EOB emitters, under supervision
				  • Able to quality assure a model (new or edited), under supervision
				  • Able to use GALE (land), THURBON, JEWOSC portal and functional areas throughout the end-to-end EOB processes, under supervision
				Stakeholder/Customer Experience
				• Able to communicate with external agencies to ensure receipt of up-to-date intelligence sources

Level 1 In Training	**1A**	**Theoretical Understanding**
		• Has completed an A-level (A*-D) in a STEM subject or has more than 2 years of experience in EW
		• Has completed the EW for EWOS course or equivalent
			1B	**Practical Understanding**
				• Demonstrates simple understanding of EOB tasks:
				  • Able to research using databases, digital data sources, and analytical toolsets which may include LIS, Cardinal, MODNET, DII(S), SLAN, AS Systems, under supervision
				  • Able to build, edit and delete a model within THURBON, under supervision
				• Demonstrates simple understanding of EOB tasks related to their specialism:
				  • For land, air, maritime: Able to conduct research on emitters/assets using available intelligence sources, in order to correctly create/update entries in the Electronic Warfare database, under supervision
				  • For weapons: Able to conduct research, using Threatweb, a range of open-source assets, and through liaison with relevant related experts within JEWOSC and wider ASWC, in order to understand relevant systems and their applications, under supervision

3.1 Radar Modeller: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level n4 expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 5+ years of experience as a **Practitioner** on Nighthawk toolsets
		• Has demonstrated advanced use of modelling toolsets:
		  • Has completed **Complex Emitters**
		  • Has conducted quality assurance of all complexity emitters
		Theoretical Understanding
		• Can demonstrate advanced understanding of radar theory:
		  • Has passed level 4 assessment by Head of EM Int when applicable
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert use of modelling toolsets:
				  • Able to complete **Complex Emitters**
				  • Able to conduct quality assurance of **Complex Emitters**
				  • Able to perform **Complex Database Management Tasks**
				Stakeholder/Customer Experience
				• Able to lead the team:
				  • Able to assess analysts' capability and assign appropriate radars for modelling
				• Able to represent the JEWOSC as a Radar Modeller technical expert at external forums

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ years of experience as a **Practitioner** on Nighthawk toolsets
		• Has demonstrated good use of modelling toolsets:
		  • Has completed **Intermediate Emitters**
		  • Has completed **Simple Database Management Tasks**
		  • Has produced basic Jython programming, e.g. LFMOP with modulated PRI
		Theoretical Understanding
		• Has demonstrated good understanding of radar theory:
		  • Has passed level 3 assessment by Modelling C2 assessment when applicable
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced use of modelling toolsets:
				  • Able to complete **Complex Emitters,** under supervision
				  • Able to complete **Intermediate Emitters**
				  • Able to conduct quality assurance of **Intermediate Emitters**
				  • Able to perform **Complex Database Management Tasks**, under supervision
				  • Able to produce basic Jython programming, e.g. LFMOP with modulated PRI
				Theoretical Understanding
				• Demonstrates advanced understanding of radar theory
				  • Able to interpret **Data Sources** and describe the function of **Complex Emitters** and derive radar performance from incomplete **Data Sources**
				Stakeholder/Customer Experience
				• Able to provide advice as a subject matter expert to the wider JEWOSC department:
				  • Mentors and coaches others to solve problems
				  • Able to hold forums amongst analysts and other relevant stakeholders

Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 1+ years of experience in Electronic Warfare
		• Has demonstrated simple use of modelling toolsets
		  • Has completed **Simple Emitters,** under supervision
		  • Has completed **Simple Database Management Tasks,** under supervision
		Theoretical Understanding
		• Can demonstrate simple understanding of radar theory:
		  • Has passed level 2 assessment by Modelling C2 assessment when applicable
		  • Has created basic algorithms using Python coding
		• Has completed relevant fundamental core training, including Nighthawk and SERF Practitioner training
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good use of modelling toolsets:
				  • Able to complete **Intermediate Emitters,** under supervision
				  • Able to complete **Simple Emitters**
				  • Able to provide quality assurance for **Simple Emitters,** under supervision
				  • Able to perform some **Simple Database Management Tasks**
				  • Able to produce basic algorithmic programming, using Jython
				Theoretical Understanding
				• Demonstrates good understanding of radar theory:
				  • Able to interpret **Data Sources** and describe the function of intermittent emitters

Level 1 In Training	**1A**	**Theoretical Understanding**
		• Has completed an Engineering, Maths, or Computer Science degree or has more than 2 years of experience in EW
		• Has completed the EW for EWOS course or equivalent
		• Has completed a foundation course or otherwise has some practical experience in Python coding
			1B	**Practical Understanding**
				• Demonstrates simple use of modelling toolsets:
				  • Able to search and analyse intelligence from **Data Sources**, under supervision
				  • Able to complete **Simple Emitters,** under supervision
				  • Able to complete **Simple Database Management Tasks** – such as completing an identifier allocation function, under supervision
				Theoretical Understanding
				• Demonstrates simple understanding of radar theory:
				  • Is undertaking Nighthawk and SERF Practitioner training
				  • Is undertaking the JEWOSC RBM (Radar Behavioural Modelling) course, using Nighthawk

3.2 Radar Modeller: Supporting Information

1. *A **Simple Emitter** is defined as an emitter with one modulation method, with approximately 100 mode lines (e.g. communications navigation radar), using relatively complete data holdings. Completing it successfully involves generating the model and successfully completing the internal quality audit stages*

2. *An **Intermediate Emitter** is defined as an emitter with 3-4 modulation methods, with approximately 100-1000 mode lines (e.g. air/surface surveillance radar/early warning radar). Completing it successfully involves generating the model and successfully completing the internal quality audit stages, while using knowledge of radar systems to deal with increased data gaps.*

3. *A **Complex Emitter** is defined as an emitter with an unrestricted number of modulation methods, with 1000+ mode lines (e.g. target tracking radar/missile guidance radar/AESA Radar). Completing it successfully involves generating the model and successfully completing the internal quality audit stages, while using knowledge of radar systems to deal with significant data gaps.*

4. *Database Management tasks: **Simple Database Management Tasks** include but are not limited to creating or modifying radar entities and using the workflow processes. **Complex Database Management Tasks** include* processes such as Incorporate (INCOR) of complex radars and consolidating multiple models into a single emitter model

5. *A **Practitioner** is defined as an analyst who is capable of competently using the Nighthawk tool set for emitter modelling (both production of EWIR radar models and the generation of modal data output configuration models), navigating and extracting source data.*

6. ***Data Sources** is defined here as data derived from multiple intelligence feeds, including but not limited to: all MOD owned intelligence repositories, common emitter database, NATO emitter database, open source, intercept reporting, NAIC, KILTING and SERF (or replacement systems).*

4.1 Intercept Modeller: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level 4 Expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 5+ years of experience as a **Practitioner** on modelling toolsets
		• Has demonstrated use of all complexity modelling toolsets:
		  • Has completed **Complex EIMs** and **OEMs**
		  • Has quality assured **Intermediate EIMs** and **OEMs**, of other Intercept Modeller outputs
		Theoretical Understanding
		• Can demonstrate advanced understanding of radar / signals analysis theory
		  • Has passed level 4 assessment by Head of EM Int (when applicable)
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert understanding of modelling toolsets:
				  • Able to complete **Complex EIMs** and **OEMs**
				  • Able to quality assure **Complex EIMs** and **OEMs**
				  • Able to use multiple modulation techniques in advanced radar processing
				Stakeholder/Customer Experience
				• Able to provide advice as a subject matter expert to wider defence community

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ years of experience as a **Practitioner** on modelling toolsets
		• Has demonstrated good use of modelling toolsets:
		  • Has completed **Intermediate EIMs** and **OEMs,** under supervision
		  • Has quality assured **Simple EIMs** and **OEMs**, of other Intercept Modeller outputs
		Theoretical Understanding
		• Can demonstrate good understanding of radar / signals analysis theory
		  • Has passed level 3 assessment by Intercept C2 (when applicable)
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced use of modelling toolsets:
				  • Able to complete **Complex EIMs** and **OEMs**, under supervision
				  • Able to complete **Intermediate EIMs** and **OEMs**
				  • Able to quality assure **Intermediate EIMs** and **OEMs**, under supervision
				Stakeholder/Customer Experience
				• Able to provide advice as a subject matter expert to the wider department:
				  • Mentors and coaches others to solve problems
				  • Able to hold forums amongst analysts and other relevant stakeholders
				Theoretical Understanding
				• Able to interpret **Data Sources** and describe the function of complex emitters and derive radar performance from incomplete **Data Sources**

Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 6+ months of experience processing intercept reporting
		• Has demonstrated simple use of modelling toolsets:
		  • Has completed **Simple EIMs** and **OEMs,** under supervision
		  • Has completed basic database management functions
		Theoretical Understanding
		• Has completed the JEWOSC RBM (Radar Behavioural Modelling) course
		• Has completed Nighthawk **Practitioner** training
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good use of modelling toolsets:
				  • Able to complete **Intermediate EIMs** and **OEMs**, under supervision
				  • Able to quality assure **Simple EIMs** and **OEMs** under supervision
				  • Is a **Practitioner** on intercept toolsets
				Theoretical Understanding
				• Can demonstrate an understanding of radar / signals analysis theory

Level 1 In Training	**1A**	**Theoretical Understanding**
		• Has complete an Engineering, Maths, or Computer Science degree or has more than 2 years of experience in EW
		• Has completed the EW for EWOS course or equivalent
			1B	**Practical Understanding**
				• Demonstrates simple understanding of modelling toolsets:
				  • Able to complete **Simple EIMs** and **OEMs,** under supervision
				  • Able to search and analyse **Data Sources**, under supervision
				Theoretical Understanding
				• Is undertaking the JEWOSC RBM (Radar Behavioural Modelling) course
				• Is undertaking Nighthawk Practitioner training

4.2 Intercept Modeller: Supporting Information

1. *A **Simple ELINT Intercept Model (EIM)** is defined as a single mode line with a waveform of varying complexity. An example would be an EIM of a communications navigation radar*
2. *A **Simple Observed ELINT Model (OEM)** is defined as a model utilising cohered data from 1-10 mode lines, featuring complex waveforms. An example would be an OEM of a communications navigation radar*
3. *An **Intermediate EIM** is defined as a single mode line with a complex waveform, utilising switches. An example would be an EIM of an air/surface surveillance radar / early warning radar*
4. *An **Intermediate OEM** is defined as a model utilising cohered data from 10-50 mode lines, featuring complex waveforms and switches. An example would be an OEM of an air/surface surveillance radar / early warning radar*
5. *A **Complex EIM** is defined as a single mode line with a complex waveform, utilising switches and algorithms (programmed in Jython). An example would be an EIM of a target tracking or missile guidance radar*
6. *A **Complex OEM** is defined as a model utilising cohered data from 50+ mode lines, featuring complex waveforms, switches and algorithms (programmed in Jython). An example would be an OEM of a target tracking / missile guidance radar*
7. *A **Practitioner** is defined as an analyst who is capable of competently using the Nighthawk tool set for EIM and OEM production regardless of data origin, navigating and extracting supplementary **Data Sources***
8. ***Data Sources** is defined here as data derived from multiple intelligence feeds, including but not limited to: all MOD owned intelligence repositories, common emitter database, NATO emitter database, open source, intercept reporting, NAIC, KILTING and SERF (or replacement systems).*

5.1 STIM Engineer: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level 4 Expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 5+ years of experience maintaining CEESIMs
		Theoretical Understanding
		• Able to extract all complexity emitters
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert understanding of CEESIMs:
				  • Able to build all complexity emitters
				  • Able to demonstrate expert understanding of all data sources available
				Stakeholder/Customer Experience
				• Mentors and coaches others to solve problems:
				  • Able to provide advice as a subject matter expert
				  • Able to hold forums amongst analysts and other relevant stakeholders
				• Able to lead the team:
				  • Able to facilitate change and encourage teams to recognise industry standards, embracing new systems, toolsets and policy where relevant across the whole organisation
				• Able to liaise with external bodies to integrate CEESIM best practice and policy within the JEWOSC:
				  • Able to represent the JEWOSC as a CEESIM technical expert at external forums (e.g. International CEESIM Users Requirements meeting)
				  • Able to feed back any relevant information of new or upgraded CEESIMs / software
				  • Able to comply with UK MOD instructions and coalition network services

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ years of experience maintaining CEESIMs
		• Has demonstrated good understanding of Linux:
		  • Has experience with Linux and the system management, including: the usage of backing up the data, completing Linux root commands, and correctly carrying out the data management process
		  • Has completed a BIT (Built in Test) calibration, ensuring adequate measures were taken to ensure the resulting data was correct
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced understanding of CEESIMs:
				  • Able to build **High Complexity Emitters**, using the CEESIM GUI interface
				  • Able to correctly build receiver equipment antenna patterns using the receiver antenna pattern generator (RAPGEN)
				  • Able to explain how to transfer antenna pattern ASCII files from the NAV Data computer to the required CEESIM
				  • Able to explain how to run the SUT Rx modelling file utility to convert ASCII files to CEESIM download files and then verify their operation and output using a spectrum analyser
				  • Able to complete a BIT calibration on all CEESIMs and use the other calibration results to confirm calibration is correct
				  • Able to explain how to carry out the preparation required before building a CEESIM user account and demonstrate how to create and customise the new CEESIM user account

Level 2
Supervised Practitioner
	2C	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 6+ months of experience maintaining CEESIMs
		• Has demonstrated basic understanding of Linux:
		  • Has experience of operating and maintaining Linux operating systems
		Theoretical Understanding
		• Has completed CEESIM Maintenance Training
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good understanding of CEESIMs GUI:
				  • Able to build **Medium Complexity Emitters**, using the CEESIM GUI interface, under supervision
				  • Able to correctly manage CEESIM files without error and understand how to carry out CEESIM fault diagnostic and rectify any issues found, under supervision
				  • Able to correctly describe and understand the data management processes. This includes data transfer and carrying out an exchange contingency backup to external HDD for storage elsewhere, under supervision
				• Development of Linux Programming ability:
				  • Able to correctly carry out Linux system management, which includes CEESIM targeted backups, CEESIM image backups and CEESIM Contingency backups
				  • Able to demonstrate how to complete Linux root level commands on all CEESIMs, under supervision
				  • Able to carry out a targeted backup using Linux operating system
				  • Able to undertake contingency backups using Linux operating system to DVD-R Discs
				  • Able to carry out a CEESIM password change
				• Demonstrates an ability to carry out calibration and post component replacement calibration:
				  • Able to correctly operate any diagnostic equipment in all JEWOSC CEESIMs
				  • Able to input the antenna patterns into the CEESIM to ensure correct operation
				  • Able to correctly replace any removable hardware in the event it is damaged or requires a calibration, under supervision
				Stakeholder/Customer Experience
				• Demonstrates competent communication with others to solve problems:
				  • Able to assist MD Test teams with issues relating to validation

Level 1
In Training
	1A	**Theoretical Understanding**
		• Has completed a level 3 BTEC in Engineering, equivalent or higher
		• Has completed the EW for EWOS course or equivalent
			1B	**Practical Understanding**
				• Demonstrates simple understanding of CEESIM GUI, under supervision:
				  • Able to navigate the CEESIM GUI to allow for successful CEESIM operations
				  • Able to explain angle of attack in relation to the CEESIM GUI
				  • Able to build **Simple Complexity Emitters** using the CEESIM GUI interface
				  • Able to configure the STIM Hall CEESIM network
				• Demonstrates an understanding of the CEESIM hardware, under supervision:
				  • Able to demonstrate an understanding of CEESIM hardware down to sub-assembly/modular level and explain their operation
				  • Able to identify all components down to sub-assembly / modular level and understand their operation on all JEWOSC CEESIMs
				• Introduction to Linux, under supervision:
				  • Able to understand Linux and the need to navigate directories
				  • Able to carry out simple Linux commands (e.g. cp, ls, mv, more, pwd etc)
				  • Able to carry out logic short cuts within the CEESIM network
				• Routine Diagnostic and fault test, under supervision:
				  • Able to power up and down all JEWOSC CEESIMs in a safe manner, including after building power outages
				  • Able to undertake system self-check tests on all JEWOSC CEESIMs within the Thompson building CEESIM environment
				  • Able to correctly zero the power meter
				  • Able to show un understanding of common faults and all JEWOSC CEESIMS
				  • Able to correctly generate a CEESIM fault maintenance data plot and explain the graphical results to aid fault diagnosis
				• Model Backup:
				  • Able to carry out master scenario backups to the portal 4TB JEWSOC HDD and confirm the backup has worked, under supervision
				• CEESIM Calibration:
				  • Able to carry out the following calibration on all JEWOSC CEESIMS, under supervision: frequency calibration, monthly calibration, quarterly calibration

5.2 STIM Engineer: Supporting Information

1. ***Simple Complexity Emitter***– *Being able to build a* ***Simple Complexity Emitter*** *is defined here as possessing the following skills:*

- *The ability to analyse and program simple search and similar emitters (Simple Complexity Emitters) constituting:*
  - *RF* – Single, simple channelized, and some dual elements (i.e. CW, stable and dwell and switch)*
  - *PRI – Single, simple dwell switch, simple patterned (i.e. stable, staggers, agile, patterned, and dwell & switch)*
  - *PW - Single (i.e. stable)*
  - *Scan – circular, sector, helical, raster, TT, conical and any of the previous with a palmer component*
- *Be conversant in programming simple links and triggers in CEESIM whilst requiring minimal supervision or assistance to build a model*
- *Able to analyse emitter models using emitter preview and associated emitter models through TLM, modal view or similar*

(These models will ONLY be used for testing post CEESIM maintenance and will not be tested against mission data products)

2. ***Medium Complexity Emitter***– *Being able to build a* ***Medium Complexity Emitter*** *is defined here as possessing the following skills:*

- *The ability to analyse and program emitters containing various TA/MG techniques (Medium Complexity Emitters) including:*
  - *RF* - agile, FMR (Frequency Modulation Ranging), periodic, dual beam (frequency diversity)*
  - *PRI - periodic, agile (i.e. Doppler)*
  - *PW - intrapulse modulation (i.e. PMOP, FMOP)*
  - *Scan – Interleaved complex raster scans with calculated flyback, Electronic scans (ETWS), superimposed scans (i.e. 3d Scans)*
- *Is conversant in basic missile guidance pulse groups*
- *Is conversant in the programming of multiple generators*

(These models will ONLY be used for testing post CEESIM maintenance and will not be tested against mission data products)

3. ***High Complexity Emitter***– *Being able to build a* ***High Complexity Emitter*** *is defined here as possessing the following skills:*

- *Able to analyse and program modern framed based emitters which use interleaved/dynamic waveform functionalities*
- *Algorithm analysis – if an emitter's SERF TLM or descriptions doesn't contain the information required to program and the producer is required to interpret the SERF file top level code or simulation code algorithms*
- *Able to use all other programming techniques not previously covered in Simple and Medium Complexity Emitters*
- *Is conversant in programming a model from multiple sources of IMD. Multiple sources of IMD would provide comprehension of the model and the ability to construct a fully representative model*
- *Is confident and efficient in use of links and triggers to build models*
- *Is adept with designing and building high fidelity models requiring HFIM patterns*
- *Has the ability and knowledge to successfully transfer HFIM and antenna files as required*

(These models will ONLY be used for testing post CEESIM maintenance and will not be tested against mission data products)

6.1 Reprogrammer: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level 4 Expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 5+ years of experience as a Reprogrammer or other relevant role
		• Has demonstrated advanced understanding of radar theory:
		  • Has completed extractions of **High Complexity Emitters**
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert understanding of radar theory:
				  • Able to demonstrate expert understanding of all data sources available and instructions of UK MOD and coalition network services
				  • Able to complete extractions of all **Simple, Medium, and High Complexity Emitters**
				Stakeholder/Customer Experience
				• Mentors and coaches others to solve problems:
				  • Able to provide advice as a subject matter expert
				  • Able to hold forums amongst analysts and other relevant stakeholders
				• Able to lead the team:
				  • Able to lead change and encourage teams to embrace new systems, toolsets and policy where relevant across the whole organisation

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ years of experience as a Reprogrammer or other relevant role
		• Has demonstrated good understanding of radar theory:
		  • Has completed extractions of **Medium Complexity Emitters,** from either EWIR or equivalent source
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced understanding of radar theory:
				  • Able to complete extractions of varying complexity, including **High Complexity Emitters**, under supervision
				  • Able to quality assure relevant documentation, under supervision
				Stakeholder/Customer Experience
				• Demonstrates competent communications skills:
				  • Able to communicate confidently with platform design teams and with industry partners when discussing the teams specific platform
				• Mentors and coaches others to solve problems:
				  • Able to mentor others

Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 6+ months of experience in a Reprogrammer or other relevant role
		• Has demonstrated simple understanding of radar theory:
		  • Has completed extractions of **Simple Complexity Emitters**, from EWIR or an equivalent source
		  • Has completed parametric tests on mission data products, and can give examples of where testing has failed and rectification has been carried out
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good understanding of radar theory:
				  • Able to complete extractions of **Medium Complexity Emitters**, under supervision
				  • Able to carry out fault-finding post testing, correct errors or omissions and document findings in the MANDb toolset, under supervision
				• Demonstrates good understanding of relevant toolsets:
				  • Able to identify out-of-date emitters, using the MANDb toolset, under supervision
				  • Able to raise and populate area-specific chapter groups using the MANDb toolset, under supervision
				  • Able to raise and complete the correct documentation throughout the Mission Data Lifecycle

Level 1 In Training	**1A**	**Theoretical Understanding**
		• Has completed a level 3 BTEC in any STEM subject, equivalent or higher
		• Has completed the EW for EWOS course or equivalent
			1B	**Practical Understanding**
				• Demonstrates simple understanding of radar theory:
				  • Able to complete extractions of **Simple Complexity Emitters** for their specific platform, under supervision
				  • Able to carry out testing of **Simple Complexity Emitters** / mission data set and document test results, under supervision
				• Demonstrates simple understanding of relevant toolsets:
				  • Able to carry out and understand the process of the Mission Data Lifecycle
				  • Able to raise the correct documentation throughout the Mission Data Lifecycle using the MANDb toolset, under supervision

6.2 Reprogrammer: Supporting Information

1. *Extractions of **Simple Complexity Emitters** is defined here as:*

   - *RF – Constant, simple channelised, some duel elements (sequential firing order)*
   - *PRI – Constant, simple dwell switch, simple staggers. Low number of elements (<20)*
   - *PW – Single (Stable)*
   - *Scan – Normal scan (any type) no beam elements*

2. *Extractions of **Medium Complexity Emitters** is defined here as:*

   - *RF – Agile (discrete patterned / unpatterned), jitter (continuous patterned / unpatterned). Simultaneous firing order with >2 elements*
   - *PRI – Agile, dwell switch, staggers, medium number of elements (>21)*
   - *PW – Intrapulse modulation (i.e. PMOP, FMOP)*
   - *Scan – Dual sequential beams, super imposed scans*

3. *Extractions of **High Complexity Emitters** is defined here as:*

   - *RF – All complexities of RF*
   - *PRI – Multiframe pulses (doublets, triplets etc…), large staggers, large dwell switch*
   - *PW – Multiframe PW, simultaneous switching pulses within one PRI*
   - *Scan – Multiple simultaneous beams, phased array scans*

7.1 Test Modeller: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level 4 Expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 5 years+ relevant experience
		• Has demonstrated advanced understanding of CEESIMs:
		  • Able to build **High Complexity emitters**
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert understanding of CEESIMs:
				  • Able to demonstrate expert understanding of all data sources available of UK MOD instructions and coalition network services
				  • Able to model and quality assure all level of complexities of emitters
				Stakeholder/Customer Experience
				• Mentors and coaches others to solve problems:
				  • Able to provide advice as a subject matter expert
				  • Able to explain complex descriptions to other team members
				  • Able to hold forums amongst analysts and other relevant stakeholders
				• Able to lead the team:
				  • Able to lead change and encourage teams to embrace new systems, toolsets and policy where relevant across the whole organisation

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		• Typically has 3 years of experience emitter modelling
		• Has demonstrated good understanding of CEESIMs:
		• Has built **Medium Complexity emitters** and confirmed they work as they should on the CEESIM
		Theoretical Understanding
		• Has completed the Learning Tree course for Python or equivalent
		• Has demonstrated how to use python code to write csv files for ingest by Sequence Import Facility (SIF)
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced understanding of CEESIMs under supervision:
				  • Able to build **High Complexity emitters**
				  • Able to use links, triggers, and multiple generators
				  • Able to complete all aspects of modelling
				Stakeholder/Customer Experience
				• Able to offer guidance and assistance on policy / procedure to all modellers

Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has at least 6+ months of experience emitter modelling
		• Has demonstrated simple understanding of CEESIMs:
		  • Has used EGA and DPM tools to create simple CEESIM models and confirm they display as the user would expect
		Theoretical Understanding
		• Has knowledge of modulation techniques and scan patterns and can describe all types of modulation and how they can affect scan patterns
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good understanding of CEESIMs, under supervision:
				  • Able to understand and build **Medium Complexity emitters**
				  • Able to analyse and assess a CEESIM model using emitter preview, EGA and DPM
				  • Able to model sequential model behaviour
				  • Able to model discrete continuous, patterned and non-patterned modulation
				  • Able to read and understand Python code and transfer the data into a CEESIM

Level 1 In Training	**1A**	**Theoretical Understanding**
		• Has completed a level 3 BTEC in any STEM subject, equivalent or higher
		• Has completed the EW for EWOS course or equivalent
			1B	**Practical Understanding**
				• Demonstrates simple understanding of CEESIMs, under supervision:
				  • Able to extract the relevant parametric data from a JEWOSC data source, or equivalent
				  • Able to build basic emitters including stable parametric types and scan patterns
				  • Is competent in the basic use of Environment Generation and Analysis (EGA) and Digital Pulse Memory (DPM), or other modelling tooling, under supervision
				  • Able to model to suit particular requirements or techniques, under supervision, demonstrating understanding of modelling toolsets available

7.2: Test Modeller: Supporting Information

1. ***Simple Complexity*** *Emitter Build – Being able to build a* ***Simple Complexity Emitter*** *is defined here as possessing the following skills:*

   - *The ability to analyse and program simple search and similar emitters (Simple Complexity Emitters) constituting:*
     - *RF – Single, simple channelized, and some dual elements (i.e. CW, stable and dwell and switch)*
     - *PRI – Single, simple dwell switch, simple patterned (i.e. stable, staggers, agile, patterned, and dwell & switch)*
     - *PW - Single (i.e. stable)*
     - *Scan – circular, sector, helical, raster, TT, conical and any of the previous with a palmer component*
   - *Be conversant in programming simple links and triggers in CEESIM whilst requiring minimal supervision or assistance to build a model*
   - *Able to analyse emitter models using emitter preview and associated emitter models through TLM, modal view or similar*

2. ***Medium Complexity*** *Emitter Build – Being able to build a* ***Medium Complexity Emitter*** *is defined here as possessing the following skills:*

   - *The ability to analyse and program emitters containing various TA/MG techniques (Medium Complexity Emitters) including:*
     - *RF - agile, FMR (Frequency Modulation Ranging), periodic, dual beam (frequency diversity)*
     - *PRI - periodic, agile (i.e. Doppler)*
     - *PW - intrapulse modulation (i.e. PMOP, FMOP)*
     - *Scan – Interleaved complex raster scans with calculated flyback, Electronic scans (ETWS), superimposed scans (i.e. 3d Scans)*
   - *Is conversant in basic issile guidance pulse groups*
   - *Is conversant in the programming of multiple generators*

3. ***High Complexity*** *Emitter Build – Being able to build a* ***High Complexity Emitter*** *is defined here as possessing the following skills:*

   - *Able to analyse and program modern framed based emitters which use interleaved/dynamic waveform functionalities*
   - *Algorithm analysis – if an emitter's SERF TLM or descriptions doesn't contain the information required to program and the producer is required to interpret the SERF file top level code or simulation code algorithms*
   - *Able to use all other programming techniques not previously covered in Simple and Medium Complexity Emitters*
   - *Is conversant in programming a model from multiple sources of IMD. Multiple sources of IMD would provide comprehension of the model and the ability to construct a fully representative model*
   - *Is confident and efficient in use of links and triggers to build models*
   - *Is adept with designing and building high fidelity models requiring HFIM patterns*
   - *Has the ability and knowledge to successfully transfer HFIM and antenna files as required*

8.1 Portal Developer: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level 4 Expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ years of relevant experience
		• Has demonstrated advanced understanding of portal management:
		  • Has carried out all **Portal Management Tasks**
		• Has demonstrated advanced understanding of product configuration:
		  • Has carried out all **Product Configuration Tasks**
		Theoretical Understanding
		• Has completed training in at least two **Supplementary Specialist Skills**
		• Has some knowledge of new technology pertinent to the portal environment and products configuration activities and has applied this to own work
		Stakeholder/Customer Experience
		• Has independently understood a variety of customer requirements across the **Portal Management Tasks** and **Product Configuration Tasks**
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert understanding of portal management**:**
				  • Able to generate work instructions for any **Portal Management Task** that is part of this role
				  • Able to carry out all **Portal Management Tasks** to meet all tasking requirements
				• Demonstrates expert understanding of product configuration**:**
				  • Able to generate work instructions for any task that is part of this role
				  • Able to carry out all **Product Configuration Tasks** to meet all tasking requirements
				Theoretical Understanding
				• Able to maintain knowledge on new technology pertinent to all portal environment and product configuration activities
				Stakeholder/Customer Experience
				• Able to act as a subject matter expert and main point of contact for all **Product Configuration Tasks** and **Portal Management Tasks,** including the associated **technical toolsets**

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 1.5+ years of relevant experience
		• Has demonstrated good understanding portal management:
		  • Has carried out the majority of **Portal Management Tasks**
		• Has demonstrated a good understanding of product configuration:
		  • Has generated most product configurations using the product configuration **technical toolsets**
		Theoretical Understanding
		• Has completed training in all **Core Specialist Skills**
		• Has completed training in at least one **Supplementary Specialist Skill**
		Stakeholder/Customer Experience
		• Has independently assessed how to support individual and differing customer requirements
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced understanding of portal management:
				  • Able to carry out the majority of **Portal Management Tasks**
				• Demonstrates advanced understanding of product configuration:
				  • Able to carry out the majority of **Product Configuration Tasks**
				Theoretical Understanding
				• Is undergoing training to demonstrate proficiency in at least a second **Supplementary Specialist Skill**
				• Is developing knowledge of new technology pertinent to the portal environment and products configuration activities
				Stakeholder/Customer Experience
				• Able to understand customer requirements and the **Portal Management Tasks** required

Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ months of experience relevant to the role
		• Has demonstrated an understanding of simple portal management:
		  • Can carry out simple web development tasks utilising **technical toolsets** and skills
		• Has demonstrated an understanding of simple product configuration:
		  • Can generate simple **Product Configuration Tasks** utilising the associated **technical toolsets**
		Theoretical Understanding
		• Has completed software-specific training to demonstrate basic ability in all **Core Specialist Skills**
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good understanding of portal management:
				  • Able to carry out all simple **Portal Management Tasks**, under supervision
				  • Able to carry out some advanced **Portal Management Tasks**
				• Demonstrates good understanding of product configuration:
				  • Able to identify, by using work instructions and tasking requirements, when to utilise product configuration **technical toolsets**
				  • Able to generate most **Product Configuration Tasks** using the associated **technical toolsets**
				Theoretical Understanding
				• Is undergoing training to demonstrate proficiency in one of the **Supplementary Specialist Skills**
				Stakeholder/Customer Experience
				• Able to understand customer requirements and the workflow / toolsets to satisfy the requirement, under supervision

Level 1
In Training
	1A	**Theoretical Understanding**
		• Has completed a relevant STEM degree or has more than 6+ months of experience in web development and / or products configuration
		• Has completed the EW for EWOS course or equivalent
			1B	**Practical Understanding**
				• Demonstrates simple understanding of portal management:
				  • Able to carry out some simple **Portal Management Tasks**, under supervision
				  • Able to utilise some technical toolsets for **Portal Management Tasks**, under supervision
				• Demonstrates simple understanding of product configuration:
				  • Able to utilise some associated **technical toolsets** for **Product Configuration Tasks**, under supervision
				Theoretical Understanding
				• Is undertaking training and development in all relevant **Core Specialist Skills**
				Stakeholder/Customer Experience
				• Able to clearly communicate, orally and in written form, with customers around the JEWOSC

8.2 Portal Developer: Supporting Information

1. *To carry out **Portal Management Tasks** is defined here as being able to do the following activities:*

- *Simple: creating new document hosting areas*
- *Simple: uploading documents*
- *Simple: liaising with customers*
- *Simple: completing corresponding checks across systems*
- *Advanced: creating standalone portal installation kits and update kits*
- *Advanced: completing fault rectification activities*
- *Advanced: completing new system development activities including subject matter expert involvement during agile development sprints*

*(Completing these tasks is dependent on competency in the following **technical toolsets**: Adobe Dreamweaver, remote desktop capability, server management tools, Janes Defence Kit downloader, SHEPHERD Portal, JEWOSC tasking system (METIS portal and / or HELIX)*

2. *To carry out **Product Configuration Tasks** is defined here as being able to do the following activities:*
   - *Extraction of suitable test data from the database*
   - *Utilisation of the technical toolsets to create a parsing file to suit the customer requirements*
   - *Utilisation of the technical toolsets to test the parsed data*
   - *Error fixing of existing configurations*
   - *Liaison with customers to ensure correct data is configured into the product (in conjunction with a data output analyst)*

*(A simple product might include a small amount of complex data or a large amount of simple data. A complex product might include a large amount of complex data or a dataset with complex linkages. Completing these tasks is dependent on competency in the following **technical toolsets**: iDEWDB (including THURBON querying), Altova MapForce IDE, XMLSpy, JEWOSC tasking system (SHEPHERD portal and / or HELIX).*

3. ***Specialist Skills** are defined here as:*
   - *Core: knowledge and experience of utilising JSON data structures*
   - *Core: knowledge and experience of authoring XSL / XSLT and exploiting XML*
   - *Core: the ability to create light-weight user interfaces and ability to exploit existing restful services to populate data within a user interface*
   - *Core: some knowledge and experience of the installation and configuration of web technologies (desirable: including Apache Tomcat / Apache Solr)*
   - *Core: knowledge and experience in the use of html and the REACT for JavaScript framework*
   - *Supplementary: knowledge and experience of requirements engineering and utilisation of testing techniques*
   - *Supplementary: some knowledge and experience of the installation and configuration of proxy servers*
   - *Supplementary: knowledge and experience of Microsoft server operating systems including exploitation of Hyper-V functionality*

9.1 IT Ops Engineer - UNIX Specialism: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role
Level 4 Expert	**4G**	**As Level 3 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 5+ years of experience addressing issues and new installations, including: o 2+ years of experience addressing **High Complexity Issues and New Installations** o 2+ years of experience supervising **Medium Complexity Issues and New Installations**	**4H**	**As Level 3 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates expert administration experience of UNIX/Linux Systems: • Able to address all **High Complexity Issues and New Installations** • Able to supervise all **Medium Complexity Issues and New Installations** • Able to design, plan and implement complex network projects on UNIX/Linux including virtual environments **Stakeholder/Customer Experience** • Mentors and coaches other to solve problems: • Able to provide advice as a subject matter expert
Level 3 Practitioner	**3E**	**As Level 2 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 3+ years of experience addressing issues and new installations, including: o 1+ years of experience addressing **Medium Complexity Issues and New Installations**, under supervision o 1+ years of experience supervising **Simple Complexity Issues and New Installations** **Theoretical Understanding** • Has completed all Level II System Administration training in UNIX/Linux enterprise technologies and supplementary training including: • Solaris 11 Advanced System Administration or equivalent • Red Hat System Admin II or equivalent • EMC Data Domain System Admin or equivalent • Networker Implementation and Management or equivalent	**3F**	**As Level 2 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates advanced administration experience of UNIX/Linux Systems: • Able to investigate some **High Complexity Issues and New Installations**, under supervision • Able to address all **Medium Complexity Issues and New Installations**, under supervision • Able to supervise all **Simple Complexity Issues and New Installations** **Theoretical Understanding** • Able to utilise external resources, such as specialist online forums and documentation
Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 1+ years of experience addressing **Simple Complexity Issues and New Installations**, under supervision **Theoretical Understanding** • Has completed all the fundamental core training including; • UNIX Fundamentals & SHELL Programming or equivalent • Solaris 11 System Admin or equivalent • Red Hat System Admin or equivalent • ORACLE VM Server for SPARC or equivalent	**2D**	**As Level 1 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates good administration experience of UNIX/Linux Systems • Able to investigate some **Medium Complexity Issues and New Installations**, under supervision • Able to address all **Simple Complexity Issues and New Installations**, under supervision **Theoretical Understanding** • Undertaking Level II System Administration training of the technologies used in the information system environment • Able to utilise external resources, such as specialist online forums and documentation, under supervision **Stakeholder/Customer Experience** • Able to work collaboratively with Defence Digital • Able to communicate with customers/users
Level 1 In Training	**1A**	**Practical Understanding** • Time of relevant experience: • Typically has at least 6+ months of experience in UNIX/Linux environments **Theoretical Understanding** • Has completed a Level 4 Diploma in Professional Competence for ICT, or equivalent or higher	**1B**	**Practical Understanding** • Demonstrates simple administration experience of UNIX/Linux Systems: • Able to navigate in a UNIX or Linux system to allocate resources, install patches and perform back-ups, under supervision **Theoretical Understanding** • Undertaking specialism training courses (such as the fundamental core training or equivalent)

9.2 UNIX Specialism: Supporting Information

1. *Addressing **Simple Complexity Issues and New Installations** is defined here for IT Ops Engineer UNIX/Linux specialists as being able to do the following activities:*

   - *Able to create and configure virtual environments and manage resource allocation*
   - *Able to investigate and resolve virtual environment incidents*
   - *Able to install, configure and administer Unix/Linux server operating systems*
   - *Able to investigate and resolve Unix/Linux operating system incidents*
   - *Able to administer Networker back-up application*
   - *Able to perform back-up and restore tasks*
   - *Able to investigate and resolve back-up incidents*
   - *Able to perform application upgrades/patches in the Unix/Linux environment*

2. *Addressing **Medium Complexity Issues and New Installations** is defined here for IT Ops Engineer UNIX/Linux specialists as being able to do the following activities:*

   - *Able to manage virtual environments*
   - *Able to plan and implement changes Unix/Linux server operating systems*
   - *Able to configure and manage the Networker back-up application*
   - *Able to create and amend scripts to enable task automation*
   - *Able to plan and implement changes to security protocols*
   - *Able to implement Unix/Linux server hardware upgrades, under supervision*
   - *Able to investigate and resolve for non-standard software incidents, under supervision*
   - *Able to monitor and resolve performance incidents and activity on the network*
   - *Able to plan the deployment of application upgrades/patches in the Unix/Linux environment, under supervision*
   - *Able apply data storage allocation in the Unix/Linux environment*

3. *Addressing **High Complexity Issues and New Installations** is defined here for IT Ops Engineer UNIX/Linux specialists as being able to do the following activities:*

   - *Able to plan the configuration of virtual environments*
   - *Able to manage data storage allocation within the Unix/Linux environment*
   - *Able to plan and manage Unix/Linux server hardware and software upgrades*

10.1 IT Ops Engineer - PC LAN Specialism: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role

Level 4 Expert	**4G**	**As Level 3 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 5+ years of experience addressing issues and new installations, including:
		  ○ 2+ years of experience addressing **High Complexity Issues and New Installations**
		  ○ 2+ years of experience supervising **Medium Complexity Issues and New Installations**
			4H	**As Level 3 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates expert administration experience of information systems:
				  • Able to address all **High Complexity Issues and New Installations**
				  • Able to supervise all **Medium Complexity** issues
				  • Able to design, plan and implement major software updates
				  • Able to design, plan and implement complex network projects in the information system environment
				Stakeholder/Customer Experience
				• Mentors and coaches others to solve problems:
				  • Able to provide advice as a subject matter expert

Level 3 Practitioner	**3E**	**As Level 2 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 3+ years of experience addressing issues and new installations, including:
		  ○ 1+ years of experience addressing **Medium Complexity Issues and New Installations**, under supervision
		  ○ 1+ years of experience supervising **Simple Complexity Issues and New Installations**
		Theoretical Understanding
		• Has completed CISCO CCNA certification and all the supplementary training including:
		  • ECLYPT professional training or equivalent
		  • Administering Microsoft System Centre Configuration Manager (SCCM) or equivalent
		  • Implementing & Administering CISCO Solutions (CCNA) or equivalent
			3F	**As Level 2 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates advanced administration experience of information systems:
				  • Able to investigate some **High Complexity Issues and New Installations**, under supervision
				  • Able to address all **Medium Complexity Issues and New Installations**, under supervision
				  • Able to supervise all **Simple Complexity Issues and New Installations**
				Theoretical Understanding
				• Able to utilise external resources, such as specialist online forums and documentation

Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:**
		Practical Understanding
		• Time of relevant experience:
		  • Typically has 1+ years of experience addressing **Simple Complexity Issues and New Installations**, under supervision
		Theoretical Understanding
		• Has completed all the fundamental core training including:
		  • Troubleshooting and Supporting Win10 or equivalent
		  • CISCO Certified Technician Routing & Switching or equivalent
			2D	**As Level 1 plus (including minimum baseline requirement for external entrants):**
				Practical Understanding
				• Demonstrates good experience of information systems:
				• Able to investigate some **Medium Complexity Issues and New Installations**, under supervision
				• Able to address all **Simple Complexity Issues and New Installations**, under supervision
				Theoretical Understanding
				• Undertaking CISCO CCNA certification used in the information system environment
				• Able to utilise external resources, such as specialist online forums and documentation, under supervision
				Stakeholder/Customer Experience
				• Able to work collaboratively with Defence Digital
				• Able to communicate with customers/users

Level 1 In Training	**1A**	**Practical Understanding**
		• Time of relevant experience:
		  • Typically has at least 6+ months of experience in a PC LAN IT role
		Theoretical Understanding
		• Has completed a Level 4 Diploma in Professional Competence for ICT, or equivalent or higher
			1B	**Practical Understanding**
				• Demonstrates simple experience of information systems:
				  • Able to troubleshoot Microsoft Windows 10 and CISCO network devices installing patches and perform back-ups, under supervision
				Theoretical Understanding
				• Undertaking specialism training courses (such as the fundamental core training or equivalent)

10.2 PC LAN Specialism: Supporting Information

1. *Addressing **Simple Complexity Issues and New Installations** is defined here for IT Ops Engineer PC/LAN specialists as being able to do the following activities:*

   - *Able to investigate and resolve standard workstation (Microsoft software) incidents*
   - *Able to perform software upgrades on standard workstation*
   - *Able to perform hardware upgrades on standard workstation*
   - *Able to investigate and resolve layer 1 and 2 incidents on CISCO network devices*
   - *Able to implement minor configuration changes to network devices at layer 1 and 2 on CISCO network devices*
   - *Able to perform software and hardware upgrades on CISCO network technologies*

2. *Addressing **Medium Complexity Issues and New Installations** is defined here for IT Ops Engineer PC/LAN specialists as being able to do the following activities:*

   - *Able to plan and implement major software updates (i.e. operating system upgrades, bulk software installations), under supervision*
   - *Able to plan and implement major hardware upgrades, under supervision*
   - *Able to investigate and resolve non-standard (bespoke & non-Microsoft software) workstation incidents, under supervision*
   - *Able to implement configuration changes to network devices at layer 3 & 4, under supervision*
   - *Able to investigate and resolve layer 3 & 4 incidents on CISCO network devices, under supervision*

3. *Addressing **High Complexity Issues and New Installations** is defined here for IT Ops Engineer PC/LAN specialists as being able to do the following activities:*

   - *Able to plan and implement major software updates*
   - *Able to investigate and resolve non-standard (bespoke & non-Microsoft software) workstation incidents*
   - *Able to implement configuration changes to network devices at layer 3 & 4*

11.1 IT Ops Engineer - Windows Specialism: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role
Level 4 Expert	**4G**	**As Level 3 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 5+ years of experience addressing issues and new installations, including: ○ 2+ years of experience addressing **High Complexity Issues and New Installations** ○ 2+ years of experience supervising **Medium Complexity Issues and New Installations**	**4H**	**As Level 3 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates expert administration experience of Windows server systems: • Able to address all **High Complexity Issues and New Installations** • Able to supervise all **Medium Complexity Issues and New Installations** • Able to supervise SAN storage solutions across the network • Able to plan and implement domain level changes **Stakeholder/Customer Experience** • Mentors and coaches other to solve problems: • Able to provide advice as a subject matter expert
Level 3 Practitioner	**3E**	**As Level 2 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 3+ years of experience addressing issues and new installations, including: ○ 1+ years of experience addressing **Medium Complexity Issues and New Installations**, under supervision **Theoretical Understanding** • Has completed Microsoft certification and supplementary training including: • Microsoft SQL Server 2016 or equivalent • Automating Administration with Windows Powershell or equivalent • VMWare Sphere or equivalent • HPE Nimble Administration & Integration or equivalent • Ivanti Application Control Administration or equivalent	**3F**	**As Level 2 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates advanced administration experience of Windows server systems: • Able to investigate some **High Complexity Issues and New Installations**, under supervision • Able to address all **Medium Complexity Issues and New Installations**, under supervision • Able to supervise all **Simple Complexity Issues and New Installations** **Theoretical Understanding** • Able to utilise external resources, such as specialist online forums and documentation
Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 1+ years of experience addressing **Simple Complexity Issues and New Installations**, under supervision **Theoretical Understanding** • Has completed all the fundamental core training including: • Windows Server 2016 or equivalent • Administering Windows Exchange Server 2016/2019 or equivalent • Veritas Backup Exec or equivalent • McAfee ePolicy Orchestrator & Endpoint Security or equivalent	**2D**	**As Level 1 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates good administration experience of Windows server systems: • Able to investigate some **Medium Complexity Issues and New Installations**, under supervision • Able to address all **Simple Complexity Issues and New Installations**, under supervision • Able to utilise external resources, such as specialist online forums and documentation **Theoretical Understanding** • Undertaking Microsoft certification and supplementary training used in the information system environment **Stakeholder/Customer Experience** • Able to work collaboratively with Defence Digital • Able to communicate with customers/users
Level 1 In Training	**1A**	**Practical Understanding** • Time of relevant experience: • Typically has at least 6+ months of experience in a Windows Server Engineer role **Theoretical Understanding** • Has completed a Level 4 Diploma in Professional Competence for ICT, or equivalent or higher	**1B**	**Practical Understanding** • Demonstrates simple experience of Windows server systems: • Able to troubleshoot Microsoft Server to allocate resources, install patches and perform back-ups under supervision **Theoretical Understanding** • Undertaking initial specialism training courses (such as the fundamental core training or equivalent)

11.2 Windows Specialism: Supporting Information

1. *Addressing **Simple Complexity Issues and New Installations** is defined here for IT Ops Engineer Windows specialists as being able to do the following activities:*

   - *Able to create and configure virtual environments and manage resource allocation*
   - *Able to investigate and resolve virtual environment incidents*
   - *Able to install, configure and administer Microsoft Windows Server operating system*
   - *Able to administer remote desktop services*
   - *Able to investigate and resolve Windows Server operating system incidents*
   - *Able to administer Microsoft Windows Exchange Server*
   - *Able to investigate and resolve Windows Exchange Server incidents*
   - *Able to configure and administer Veritas Backup Exec*
   - *Able to perform back-up and restore tasks*
   - *Able to investigate and resolve back-up incidents*
   - *Able to install, configure and administer McAfee security applications*
   - *Able to investigate and resolve McAfee security application incidents*
   - *Able to perform application upgrades/patches in the windows environment*
   - *Able apply data storage allocation in the windows environment*

2. *Addressing **Medium Complexity Issues and New Installations** is defined here for IT Ops Engineer Windows specialists as being able to do the following activities:*

   - *Able to plan and implement software through Software Centre Configuration Manager*
   - *Able to investigate and resolve incidents with software deployments*
   - *Able to manage data storage allocation within the windows environment*
   - *Able to create and amend scripts to enable task automation*
   - *Able to monitor and resolve performance incidents and activity on the internal network*
   - *Able to plan and implement changes to Microsoft Windows Server operating systems*
   - *Able to plan and implement changes to security protocols*
   - *Able to configure domain controllers under supervision*
   - *Able to plan and implement server hardware upgrades, under supervision.*
   - *Able to investigate and resolve for non-standard software, incidents, under supervision*
   - *Able to plan the deployment of application upgrades/patches in the windows environment, under supervision*

3. *Addressing **High Complexity Issues and New Installations** is defined here for IT Ops Engineer Windows specialists as being able to do the following activities:*

   - *Able to manage SAN storage solutions across the network*
   - *Able to plan and implement domain level changes*

12.1 Change Manager: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role
Level 4 Expert	**4G**	**As Level 3 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 5+ years of experience addressing issues and new installations, including: ○ 2+ years of experience facilitating **High Complexity Changes and Procurements** ○ 2+ years of experience supervising **Medium Complexity Changes and Procurements** **Theoretical Understanding** • Has completed training in Information Technology Service Management tool level 2	**4H**	**As Level 3 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates expert understanding of the change management process: • Able to supervise and co-ordinate technical solutions in order to facilitate **High Complexity Changes and Procurements** **Stakeholder/Customer Experience** • Mentors and coach other to solve problems • Able to provide advice as a subject matter expert
Level 3 Practitioner	**3E**	**As Level 2 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 3+ years of experience addressing issues and new installations, including: ○ 1+ years of experience facilitating **Medium Complexity Changes and Procurements**, under supervision ○ 1+ years of experience supervising **Simple Complexity Changes and Procurements** **Theoretical Understanding** • Has completed training in Information Technology Service Management tool level 1 & configuration and installation design	**3F**	**As Level 2 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates advanced understanding of the change management process: • Able to investigate technical solutions in order to facilitate some **High Complexity Changes and Procurements**, under supervision • Able to carry out technical solutions in order to facilitate all **Medium Complexity Changes and Procurements**, under supervision • Able to supervise technical solutions in order to facilitate all **Simple Complexity Changes and Procurements** **Theoretical Understanding** • Undertaking training in Information Technology Service Management tool level 2
Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 1+ years of experience facilitating **Simple Complexity Changes and Procurements**, under supervision **Theoretical Understanding** • Has completed external training course for ITIL Foundation in IT Service Management	**2D**	**As Level 1 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates a good understanding of the change management process: • Able to supervise technical solutions in order to facilitate some **Medium Complexity Changes and Procurements**, under supervision • Able to facilitate **Simple Complexity Changes and Procurements**, under supervision **Theoretical Understanding** • Undertaking training which includes: Configuration and installation design, and Information Technology Service Management tool level 1 **Stakeholder/Customer Experience** • Able to work collaboratively with Defence Digital • Able to communicate with customers/users
Level 1 In Training	**1A**	**Practical Understanding** • Time of relevant experience: • Typically has at least 6+ months of experience in a CIS environment **Theoretical Understanding** • Has completed a Level 4 Diploma in Professional Competence for ICT, or equivalent or higher	**1B**	**Theoretical Understanding** • Undertaking external training course for ITIL Foundation in IT Service Management

12.2 Change Manager: Supporting Information

1. *Facilitating **Simple Complexity Changes and Procurements** is defined here for Change Managers as being able to do the following activities:*

   - *Able to process a change request for new individual items*
   - *Able to process a change request for single users*
   - *Able to generate procurement requests for new software and hardware*

2. *Facilitating **Medium Complexity Changes and Procurements** is defined here for Change Managers as being able to do the following activities:*

   - *Able to coordinate procurement requests for multiple items for the same project*
   - *Able to coordinate multiple changes for a single project*
   - *Able to coordinate change to integrate new technologies*
   - *Able to generate and coordinate change with multiple stakeholders internal to the organisation*
   - *Able to coordinate change through liaison with external change management*

3. *Facilitating **High Complexity Changes and Procurements** is defined here for Change Managers as being able to do the following activities:*

   - *Able to coordinate procurement requests across multiple projects*
   - *Able to coordinate procurement requests with commercial organisations. This may include providing Statements of Requirements, business cases to support tender processes*
   - *Able to coordinate high value procurement activities that are subject to third party approval or regulations*

13.1 IT Software Tester: Competency Framework

		Minimum baseline requirement for external entrants		Competencies and capabilities required in role
Level 4 Expert	**4G**	**As Level 3 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 5+ years of experience completing testing activities, including: o 2+ years as a test programme lead **Theoretical Understanding** • Typically has completed specialist training courses including BCS Advanced Test Manager	**4H**	**As Level 3 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrate an expert understanding of software testing: • Able to complete all **High Complexity Testing Activities**, within a test programme • Able to provide assurance for the quality of the test results and testing environment, against the testing parameters, to the product owner • Able to supervise one or more testing programmes **Stakeholder/Customer Experience** • Mentors and coaches other to solve problems • Able to provide advice as a subject matter expert
Level 3 Practitioner	**3E**	**As Level 2 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 3+ years of experience completing testing activities **Theoretical Understanding** • Typically has completed specialist training courses including BCS ISTQB Advanced Test Analyst	**3F**	**As Level 2 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrate an advanced understanding of software testing: • Able to complete all **Medium Complexity Testing Activities**, within a test programme, under supervision • Able to advise on quality of the test results and review processes and advise product owners if software/application meets the defined requirements **Stakeholder/Customer engagement** • Able to support in conducting the leading of a test programme, under supervision • Able to advise the product owners if the testing environment will meet the defined testing parameters
Level 2 Supervised Practitioner	**2C**	**As Level 1 plus:** **Practical Understanding** • Time of relevant experience: • Typically has 1 - 2 years of experience completing various testing activities within a test programme **Theoretical Understanding** • Typically has completed specialist training courses including BCS ISTQB Foundation	**2D**	**As Level 1 plus (including minimum baseline requirement for external entrants):** **Practical Understanding** • Demonstrates a good understanding of software testing: • Able to complete all **Simple Complexity Testing Activities**, within a test programme, under supervision • Able to update orders, manuals and test documentation **Stakeholder/Customer Experience** • Able to work collaboratively with Defence Digital • Able to communicate with customers/users
Level 1 In Training	**1A**	**Practical Understanding** • Time of relevant experience: • Typically has at least 6+ months of experience in a software testing environment **Theoretical Understanding** • Has completed a Level 4 Diploma in Professional Competence for ICT, or equivalent or higher	**1B**	**Practical Understanding** • Possesses a working knowledge on IT/Server testing environments **Theoretical Understanding** • Undergoing specialism training courses (such as BCS ISTQB Foundation or equivalent)

13.2 IT Software Tester: Supporting Information

1. *Completing **Simple Complexity Testing Activities** is defined here for IT Software Testers as being able to:*

   - *Carry out analysis of all software relating to the organisation's databases and associated applications*
   - *Liaise with external agencies and commercial companies in support of the organisations databases*
   - *Ensure that test documentation conforms to industry standard and currency*

2. *Completing **Medium Complexity Testing Activities** is defined here for IT Software Testers as being able to:*

   - *Perform the role of test team leader or member of the test team as designated by the Software Test Manager*
   - *Comply with organisational procedures and regulations with regards to data transfers and installation of new and modified software products*
   - *Analyse and review both system and user requirements, specifications and models for testability*
   - *Identify correct testing criteria from the software developers and engage to ensure suitable documentation and software releases are obtained prior to going live*

3. *Completing **High Complexity Testing Activities** is defined here for IT Software Testers as being able to:*

   - *Perform the quality assurance function to ensure testing and documentation is compliant with industry standards and procedures*
   - *Provide specialist advice on the acquisition of the latest testing software and support tools available within the industry*

14.1 Glossary of acronyms

Administering Microsoft System Centre Configuration Manager (SCCM)	refers to a certification or training course by an external provider.
Administering Windows Exchange Server 2016/2019	refers to a certification or training course by an external provider.
Adobe Dreamweaver	refers to a web development tool.
AESA Radar	refers to Active Element Scanned Array.
Altova MapForce	refers to a graphical data mapping tool, a technical toolset used as part of the Portal Developer role.
Apache Solr	refers to a software used as part of the Portal Developer role.
Apache Tomcat	refers to a software used as part of the Portal Developer role.
AS Systems	refers to Above Secret Systems.
ASCII	refers to American Standard Code for Information Interchange.
ASWC	refers to Air Space Warfare Centre.
Automating Administration with Windows Powershell	refers to a certification or training course by an external provider.
BCS Advanced Test Manager	refers to a certification or training course by an external provider.
BCS ISTQB	refers to British Computer Society International Software Testing Qualifications Board.
BCS ISTQB Advanced Test Analyst	refers to a certification or training course by an external provider.
BCS ISTQB Foundation	refers to a certification or training course by an external provider.
BIT	refers to Built in Test.
BTEC	refers to Business and Technology Education Council. BTECs are specialist work-related qualifications. They combine practical learning with subject and theory content.
CCNA	refers to Cisco Certified Network Administration.
CEESIM	refers to Combat Electromagnetic Environment Simulator.
CEESIM SIF	refers to Combat Electronic Environment Simulator Sequence Import Facility.
CIS	refers to Computer Information Science.
CISCO	refers to Commercial & Industrial Security Corporation.
CISCO Certified Technician Routing & Switching	refers to a certification or training course by an external provider.
Complex Database Management Tasks	refers to Database management tasks which are complex in nature, and may include but are not limited to processes such as Incorporate (INCOR) of complex radars and consolidating multiple models into a single emitter model.
Complex EIM	refers to an EIM with a single mode line with a complex waveform, utilising switches and algorithms (programmed in Jython). An

	example would be an EIM of a target tracking or missile guidance radar.
Complex Emitter (with regards to Radar Modellers [Section 3.2])	refers to an emitter with an unrestricted number of modulation methods, with 1000+ mode lines (e.g. target tracking radar/missile guidance radar/AESA Radar). Completing it successfully involves generating the model and successfully completing the internal quality audit stages, while using knowledge of radar systems to deal with significant data gaps.
Complex OEM	refers to an OEM utilising cohered data from 50+ mode lines, featuring complex waveforms, switches and algorithms (programmed in Jython). An example would be an OEM of a target tracking / missile guidance radar.
Core Specialist Skills	see Specialist Skills
CW	refers to Continuous Wave.
Data Sources	refers to data derived from multiple intelligence feeds, including but not limited to: all MOD owned intelligence repositories, common emitter database, NATO emitter database, open source, intercept reporting, NAIC, KILTING and SERF (or replacement systems).
Defence Digital	refers to an organisation within the Ministry of Defence.
DII(S)	refers to Ministry of Defence Network (Secret).
DLE Course	refers to Defence Learning Environment Course.
DPM	refers to Digital Pulse Memory.
ECLYPT	refers to IT Encryption device.
EGA	refers to Environment Generation and Analysis.
EIM(s)	refers to ELINT Intercept Model(s).
ELINT	refers to Electronic signals intelligence.
EMC	refers to DELL EMC founders Egan & Marino Company.
EMC Data Domain System Admin	refers to a certification or training course by an external provider.
EOB	refers to Electronic order of battle.
ETWS	refers to Electronic track wall scan.
EW	refers to Electronic warfare.
EWIR	refers to Electronic Warfare Intelligence Reprogramming.
EWOS	refers to Electronic warfare Operational Support.
FMOP	refers to Frequency modulation on pulse.
GALE	refers to an integrated broadcast system tactical data processor.
GUI	refers to Graphical User Interface.
HDD	refers to Hard Disk Drive.
Head of EM Int	EM INT refers to Electromagnetic Intelligence, with Head of EM Int referring to a job post.
HELIX	A MOD issue management application.
HFIM	refers to High fidelity intrapulse modulation.

High Complexity Changes and Procurements	Facilitating High Complexity Changes and Procurements is defined here for Change Managers as being able to do the following activities: • Able to coordinate procurement requests across multiple projects • Able to coordinate procurement requests with commercial organisations. This may include providing Statements of Requirements, business cases to support tender processes • Able to coordinate high value procurement activities that are subject to third party approval or regulations
High Complexity Emitter (with regards to Reprogrammers [Section 6.1])	Extractions of High Complexity emitters is defined here as: • RF – All complexities of RF • PRI – Multiframe pulses (doublets, triplets etc…), large staggers, large dwell switch • PW – Multiframe PW, simultaneous switching pulses within one PRI • Scan – Multiple simultaneous beams, phased array scans
High Complexity Emitter (with regards to STIM Engineers [Section 5.2] and Test Modellers [Section 7.1])	Being able to build a High Complexity Emitter is defined here as possessing the following skills: • Able to analyse and program modern framed based emitters which use interleaved/dynamic waveform functionalities • Algorithm analysis – if an emitter's SERF TLM or descriptions doesn't contain the information required to program and the producer is required to interpret the SERF file top level code or simulation code algorithms • Able to use all other programming techniques not previously covered in Simple and Medium Complexity Emitters • Is conversant in programming a model from multiple sources of IMD. Multiple sources of IMD would provide comprehension of the model and the ability to construct a fully representative model • Is confident and efficient in use of links and triggers to build models • Is adept with designing and building high fidelity models requiring HFIM patterns • Has the ability and knowledge to successfully transfer HFIM and antenna files as required
High Complexity Issues and New Installations (with regards to PC LAN Specialists [Section 10.1])	Addressing High Complexity Issues and New Installations is defined here for IT Ops Engineer PC/LAN specialists as being able to do the following activities: • Able to plan and implement major software updates • Able to investigate and resolve non-standard (bespoke & non-Microsoft software) workstation incidents • Able to implement configuration changes to network devices at layer 3 & 4
High Complexity Issues and New Installations (with regards to UNIX Specialists [Section 9.1])	Addressing High Complexity Issues and New Installations is defined here for IT Ops Engineer UNIX/Linux specialists as being able to do the following activities: • Able to plan the configuration of virtual environments • Able to manage data storage allocation within the Unix/Linux environment • Able to plan and manage Unix/Linux server hardware and software upgrades

High Complexity Issues and New Installations (with regards to Windows Specialists [Section 11.1])	Addressing High Complexity Issues and New Installations is defined here for IT Ops Engineer Windows specialists as being able to do the following activities: • Able to manage SAN storage solutions across the network • Able to plan and implement domain level changes
High Complexity Testing Activities	Completing High Complexity Testing Activities is defined here for IT Software Testers as being able to: • Perform the quality assurance function to ensure testing and documentation is compliant with industry standards and procedures • Provide specialist advice on the acquisition of the latest testing software and support tools available within the industry
HPE Nimble Administration & Integration	refers to a certification or training course by an external provider.
Hyper-V	refers to a software by Microsoft Windows used as part of the Portal Developer role.
ICT	refers to Information and Communications Technology, otherwise known as Information Technology.
IDE	refers to a technical toolset used as part of the Portal Developer role.
iDEWDB	refers to Improved Electronic Warfare Database.
IMD	refers to Intelligence mission data.
Implementing & Administering CISCO Solutions (CCNA)	refers to a certification or training course by an external provider.
INCOR	refers to Incorporate – an internal process for merging database entries.
Intercept C2 Assessment	refers to an assessment by a C2 post.
Intermediate EIM	refers to an EIM with a single mode line with a complex waveform, utilising switches. An example would be an EIM of an air/surface surveillance radar / early warning radar.
Intermediate Emitter (with regards to Radar Modellers [Section 3.2])	refers to an emitter with 3-4 modulation methods, with approximately 100-1000 mode lines (e.g. air/surface surveillance radar/early warning radar). Completing it successfully involves generating the model and successfully completing the internal quality audit stages, while using knowledge of radar systems to deal with increased data gaps.
Intermediate OEM	refers to an OEM utilising cohered data from 10-50 mode lines, featuring complex waveforms and switches. An example would be an OEM of an air/surface surveillance radar / early warning radar.
ITIL	refers to Information Technology Infrastructure Library.
ITIL Foundation in IT Service Management	refers to a certification or training course by an external provider.
Ivanti Application Control Administration	refers to a certification or training course by an external provider.
Janes Defence Kit downloader	refers to a defence intelligence application.
JavaScript	refers to a programming language.

JEWOSC	refers to Joint Electronic Warfare Operational Support Centre.
JSON	refers to JavaScript Object Notation.
Jython	refers to the programming language
KILTING	refers to the EW database.
KPIs	refers to Key Performance Indicators.
Learning Tree	refers to a course and certification provider.
Level 4 Diploma in Professional Competence for ICT	refers to an external qualification.
Level II System Administration	refers to the industry-recognised level of system administration.
Linux	refers to Linus Torvald's UNIX (flavour of UNIX for PCs).
LIS	refers to Labyrinth Information System.
LMFOP	refers to Linear Modulation Frequency on Pulse.
MANDb	refers to Management Database.
McAfee	refers to the global computer security software company.
McAfee ePolicy Orchestrator & Endpoint Security	refers to a certification or training course by an external provider.
MD Test teams	refers to Mission Data Test teams.
Medium Complexity Changes and Procurements	Facilitating Medium Complexity Changes and Procurements is defined here for Change Managers as being able to do the following activities: • Able to coordinate procurement requests for multiple items for the same project • Able to coordinate multiple changes for a single project • Able to coordinate change to integrate new technologies • Able to generate and coordinate change with multiple stakeholders internal to the organisation • Able to coordinate change through liaison with external Change Management
Medium Complexity Emitter (with regards to Reprogrammers [Section 6.1])	Extractions of Medium Complexity emitters is defined here as: • RF – Agile (discrete patterned / unpatterned), jitter (continuous patterned / unpatterned). Simultaneous firing order with >2 elements • PRI – Agile, dwell switch, staggers, medium number of elements (>21) • PW – Intrapulse modulation (i.e. PMOP, FMOP) • Scan – Dual sequential beams, super imposed scans

Medium Complexity Emitter (with regards to STIM Engineers [Section 5.2] and Test Modellers [Section 7.1])	Being able to build a Medium Complexity Emitter is defined here as possessing the following skills:
	• The ability to analyse and program emitters containing various TA/MG techniques (Medium Complexity Emitters) including:
	  ○ RF* - agile, FMR (Frequency Modulation Ranging), periodic, dual beam (frequency diversity)
	  ○ PRI - periodic, agile (i.e. Doppler)
	  ○ PW - intrapulse modulation (i.e. PMOP, FMOP)
	  ○ Scan – Interleaved complex raster scans with calculated flyback, Electronic scans (ETWS), superimposed scans (i.e. 3d Scans)
	• Is conversant in basic missile guidance pulse groups

	• Is conversant in the programming of multiple generators (These models will ONLY be used for testing post CEESIM maintenance and will not be tested against mission data products).
Medium Complexity Issues and New Installations (with regards to PC LAN Specialists [Section 10.1])	Addressing Medium Complexity Issues and New Installations is defined here for IT Ops Engineer PC/LAN specialists as being able to do the following activities: • Able to plan and implement major software updates (i.e. operating system upgrades, bulk software installations), under supervision • Able to plan and implement major hardware upgrades, under supervision • Able to investigate and resolve non-standard (bespoke & non-Microsoft software) workstation incidents, under supervision • Able to implement configuration changes to network devices at layer 3 & 4, under supervision • Able to investigate and resolve layer 3 & 4 incidents on CISCO network devices, under supervision
Medium Complexity Issues and New Installations (with regards to UNIX Specialists [Section 9.1])	Addressing Medium Complexity Issues and New Installations is defined here for IT Ops Engineer UNIX/Linux specialists as being able to do the following activities: • Able to manage virtual environments • Able to plan and implement changes Unix/Linux server operating systems • Able to configure and manage the Networker back-up application • Able to create and amend scripts to enable task automation • Able to plan and implement changes to security protocols • Able to implement Unix/Linux server hardware upgrades, under supervision • Able to investigate and resolve for non-standard software incidents, under supervision • Able to monitor and resolve performance incidents and activity on the network • Able to plan the deployment of application upgrades/patches in the Unix/Linux environment, under supervision • Able apply data storage allocation in the Unix/Linux environment
Medium Complexity Issues and New Installations (with regards to Windows Specialists [Section 11.1])	Addressing Medium Complexity Issues and New Installations is defined here for IT Ops Engineer Windows specialists as being able to do the following activities: • Able to plan and implement software through Software Centre Configuration Manager • Able to investigate and resolve incidents with software deployments • Able to manage data storage allocation within the windows environment • Able to create and amend scripts to enable task automation • Able to monitor and resolve performance incidents and activity on the internal network • Able to plan and implement changes to Microsoft Windows Server operating systems • Able to plan and implement changes to security protocols

	• Able to configure domain controllers under supervision • Able to plan and implement server hardware upgrades, under supervision. • Able to investigate and resolve for non-standard software, incidents, under supervision • Able to plan the deployment of application upgrades/patches in the windows environment, under supervision
Medium Complexity Testing Activities	Completing Medium Complexity Testing Activities is defined here for IT Software Testers as being able to: • Perform the role of test team leader or member of the test team as designated by the Software Test Manager • Comply with organisational procedures and regulations with regards to data transfers and installation of new and modified software products • Analyse and review both system and user requirements, specifications and models for testability • Identify correct testing criteria from the Software Developers and engage to ensure suitable documentation and software releases are obtained prior to going live
METIS Portal	refers to a MOD Classified website.
Microsoft	refers to the multinational technology corporation.
Microsoft SQL Server 2016	refers to a certification or training course by an external provider.
MIDB	refers to Modernise Integrated DataBase.
Mission Data Lifecycle	refers to a lifecycle that represents the core foundations of how the JEWOSC operates.
MOD	Ministry of Defence.
Modelling C2 Assessment	refers to an assessment by a C2 post.
MODNET	refers to Ministry of Defence Network.
Modulated PRI	refers to Pulse Repetition Interval.
NAIC	refers to National Air and Space Intelligence Agency.
NATO	refers to the North Atlantic Treaty Organisation.
Networker	refers to a software used as part of the IT Ops Engineer roles.
Networker Implementation and Management	refers to a certification or training course by an external provider.
Nighthawk	refers to a F117 aircraft.
OEM(s)	refers to Observed ELINT Model(s).
ORACLE VM Server for SPARC	refers to a certification or training course by an external provider.
PC LAN	refers to Personal Computer Local Area Network.
PMOP	refers to Phase Modulation On Pulse.
Portal Management Tasks	To carry out Portal Management Tasks is defined here as being able to do the following activities: • Simple: creating new document hosting areas • Simple: uploading documents • Simple: liaising with customers • Simple: completing corresponding checks across systems

	• Advanced: creating standalone portal installation kits and update kits • Advanced: completing fault rectification activities • Advanced: completing new system development activities including subject matter expert involvement during agile development sprints (Completing these tasks is dependent on competency in the following technical toolsets: Adobe Dreamweaver, remote desktop capability, server management tools, Janes Defence Kit downloader, Shepherd Portal, JEWOSC tasking system (METIS portal and / or HELIX).
Practitioner (with regards to Intercept Modellers [Section 4.1])	refers to an analyst who is capable of competently using the Nighthawk tool set for EIM and OEM production regardless of data origin, navigating and extracting supplementary Data Sources.
Practitioner (with regards to Radar Modellers [Section 3.1])	refers to an analyst who is capable of competently using the Nighthawk tool set for emitter modelling (both production of EWIR Radar Models and the generation of modal data output configuration models), navigating and extracting source data.
PRI	refers to Pulse Repetition Interval.
Product Configuration Tasks	To carry out Product Configuration Tasks is defined here as being able to do the following activities: • Extraction of suitable test data from the database • Utilisation of the technical toolsets to create a parsing file to suit the customer requirements • Utilisation of the technical toolsets to test the parsed data • Error fixing of existing configurations • Liaison with customers to ensure correct data is configured into the product (in conjunction with a data output analyst)
PW	refers to Pulse Width.
Python	refers to the programming language.
RAPGEN	refers to the receiver antenna pattern generator.
REACT	refers to a meta web application.
Red Hat System Admin II	refers to a certification or training course by an external provider.
Red Hat System Admin or equivalent	refers to a certification or training course by an external provider.
RF	refers to Radio Frequency.
SAN	refers to Storage Area Network.
SERF	A MOD Classified IT Application.
SERF TLM	refers to Standard EWIRDB (Electronic Warfare Integrated Reprogramming Database) Reference Format.
SHEPHERD Portal	A MOD Classified Web Application.
Simple Complexity Changes and Procurements	Facilitating Simple Complexity Changes and Procurements is defined here for Change Managers as being able to do the following activities: • Able to process a change request for new individual items • Able to process a change request for single users

	• Able to generate procurement requests for new software and hardware
Simple Complexity Emitter (with regards to Reprogrammers [Section 6.1])	Extractions of Simple Complexity emitters is defined here as: • RF – Constant, simple channelised, some duel elements (sequential firing order) • PRI – Constant, simple dwell switch, simple staggers. Low number of elements (<20) • PW – Single (Stable) • Scan – Normal scan (any type) no beam elements

Simple Complexity Emitter (with regards to STIM Engineers [Section 5.2] and Test Modellers [Section 7.1])	Being able to build a Simple Complexity Emitter is defined here as possessing the following skills:
	• The ability to analyse and program simple search and similar emitters (Simple Complexity Emitters) constituting:
	  o RF* – Single, simple channelized, and some dual elements (i.e. CW, stable and dwell and switch)
	  o PRI – Single, simple dwell switch, simple patterned (i.e. stable, staggers, agile, patterned, and dwell & switch)
	  o PW - Single (i.e. stable)
	  o Scan – circular, sector, helical, raster, TT, conical and any of the previous with a palmer component
	• Be conversant in programming simple links and triggers in CEESIM whilst requiring minimal supervision or assistance to build a model
	• Able to analyse emitter models using emitter preview and associated emitter models through TLM, modal view or similar
	(These models will ONLY be used for testing post CEESIM maintenance and will not be tested against Mission Data Products).

Simple Complexity Issues and New Installations (with regards to PC LAN Specialists [Section 10.1])	Addressing Simple Complexity Issues and New Installations is defined here for IT Ops Engineer PC/LAN specialists as being able to do the following activities: • Able to investigate and resolve standard workstation (Microsoft software) incidents • Able to perform software upgrades on standard workstation • Able to perform hardware upgrades on standard workstation • Able to investigate and resolve layer 1 and 2 incidents on CISCO network devices • Able to implement minor configuration changes to network devices at layer 1 and 2 on CISCO network devices • Able to perform software and hardware upgrades on CISCO network technologies
Simple Complexity Issues and New Installations (with regards to UNIX Specialists [Section 9.1])	Addressing Simple Complexity Issues and New Installations is defined here for IT Ops Engineer UNIX/Linux specialists as being able to do the following activities: • Able to create and configure virtual environments and manage resource allocation • Able to investigate and resolve virtual environment incidents • Able to install, configure and administer Unix/Linux Server Operating Systems • Able to investigate and resolve Unix/Linux operating system incidents • Able to administer Networker back-up application

	• Able to perform back-up and restore tasks • Able to investigate and resolve back-up incidents • Able to perform application upgrades/patches in the Unix/Linux environment
Simple Complexity Issues and New Installations (with regards to Windows Specialists [Section 11.1])	Addressing Simple Complexity Issues and New Installations is defined here for IT Ops Engineer Windows specialists as being able to do the following activities: • Able to create and configure virtual environments and manage resource allocation • Able to investigate and resolve virtual environment incidents • Able to install, configure and administer Microsoft Windows Server operating system • Able to administer remote desktop services • Able to investigate and resolve Windows Server operating system incidents • Able to administer Microsoft Windows Exchange Server • Able to investigate and resolve Windows Exchange Server incidents • Able to configure and administer Veritas Backup Exec • Able to perform back-up and restore tasks • Able to investigate and resolve back-up incidents • Able to install, configure and administer McAfee security applications • Able to investigate and resolve McAfee security application incidents • Able to perform application upgrades/patches in the windows environment • Able apply data storage allocation in the windows environment
Simple Complexity Testing Activities	Completing Simple Complexity Testing Activities is defined here for IT Software Testers as being able to: • Carry out analysis of all software relating to the organisation's databases and associated applications • Liaise with external agencies and commercial companies in support of the organisations databases • Ensure that test documentation conforms to industry standard and currency
Simple Database Management Tasks	refers to database management tasks which are simple in nature, and may include but are not limited to creating or modifying radar entities and using the workflow processes.
Simple EIM	refers to an EIM with a single mode line with a waveform of varying complexity. An example would be an EIM of a communications navigation radar.
Simple Emitter (with regards to Radar Modellers [Section 3.2])	refers to an emitter with one modulation method, with approximately 100 mode lines (e.g. communications navigation radar), using relatively complete data holdings. Completing it successfully involves generating the model and successfully completing the internal quality audit stages.
Simple OEM	refers to an OEM utilising cohered data from 1-10 mode lines, featuring complex waveforms. An example would be an OEM of a communications navigation radar.
SLAN	refers to Secret Local Area Network.

Software Centre Configuration Manager	refers to Configuration Manager features on the Microsoft Software Centre application.
Solaris 11 Advanced System Admin	refers to a certification or training course by an external provider.
Solaris 11 System Admin or equivalent	refers to a certification or training course by an external provider.
SPARC	refers to Scalable Processor Architecture.
Specialist Skills (with regards to Portal Developers [Section 8.1])	Specialist Skills are divided into either Core Specialist Skills or Supplementary Specialist Skills, and are defined here as: • Core: knowledge and experience of utilising JSON data structures • Core: knowledge and experience of authoring XSL / XSLT and exploiting XML • Core: the ability to create light-weight user interfaces and ability to exploit existing restful services to populate data within a user interface • Core: some knowledge and experience of the installation and configuration of web technologies (desirable: including Apache Tomcat / Solr) • Core: knowledge and experience in the use of html and the REACT for JavaScript framework • Supplementary: knowledge and experience of requirements engineering and utilisation of testing techniques • Supplementary: some knowledge and experience of the installation and configuration of proxy servers • Supplementary: knowledge and experience of Microsoft Server operating systems including exploitation of HyperV functionality
SQEP	refers to Suitably Qualified and Experienced Personnel.
SQL	refers to Structured Query Language.
Statement of Requirements	refers to the legal document setting out the description of the goods or services to be provided.
STEM subject	refers to a subject from a Science, Technology, Engineering, or Mathematics discipline.
STIM	refers to Stands for Stimulation, referring to the Job Role STIM Engineer.
Supplementary Specialist Skills	see Specialist Skills.
SUT Rx	refers to System Under Test Receiver.
TA/MG	refers to Target Acquisition / Missile Guidance.
Threatweb	refers to an application used to conduct research.
THURBON	refers to a MOD Classified Web Application.
TLM	refers to Transition Logic Map.
Troubleshooting and Supporting Win10	refers to a certification or training course by an external provider.
TT	refers to Target tracking.
UNIX	refers to Uniplexed Information and Computing System.

UNIX Fundamentals & SHELL Programming	refers to a certification or training course by an external provider.
Veritas Backup Exec	refers to a certification or training course by an external provider.
VMWare Sphere	refers to a certification or training course by an external provider.
Windows	refers to the Microsoft operating system(s).
Windows Exchange Server	refers to the Microsoft server.
Windows Server 2016	refers to a certification or training course by an external provider.
Windows Server Engineer	refers to an IT professional who bears the tasks to maintain, establish, and troubleshoot Windows server issues.
XML Spy	refers to a technical toolset used as part of the Portal Manager role.
XSL	refers to Extensible Stylesheet Language.
XSLT	refers to Extensible Stylesheet Language Transformations.