LESSON DESIGN STRATEGY (LDS) DOCUMENT	
Course Title: AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC) Maintenance Technician	**Training Event Identification Number [TEIN]:** U-ASW-2005
Module Title: CV-TSC Introduction	**Module Number:** 1.0
Lesson Title: CV-TSC Operating Systems Maintenance	**Lesson Number:** 1.4
Safety, Hazard, or Environmental Considerations: All personnel involved in operation or maintenance of electronic equipment must be thoroughly familiar with the electronic equipment safety precautions contained in Electronic Installation and Maintenance Book, General, NAVSEA SE000-00-EIM-100, Section 3, and Naval Ships' Technical Manual, Chapter 300, S9086-KC-STM-010/CH-300, Section 2. In addition, attention is directed to the Navy Safety Program Instructions, OPNAVINST 5100.19 (series) and 5100.23 (series), and the safety training requirements contained in NPDCINST 5100.1 (series). - Don't service or adjust alone - Don't tamper with interlocks - Report all hazards - Safety - "training time out" - Pre-mishap plan	
Instructional Systems Designer (ISD): Francisco J. Villalón	**Subject Matter Expert (SME):** Sean Doherty

Lesson 1.4	
Lesson Title:	CV-TSC Operating Systems Maintenance
TLO Number:	1.4
TLO Statement:	Perform operating systems maintenance
TLO Conditions:	Given applicable documentation, directives and equipment
TLO Standards:	IAW applicable technical documentation and directives to 100% accuracy

Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Applying **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type:** *(Select Fact, Concept, Procedure, Principle or Process)*	Procedure

Lesson Overview: In this lesson, the trainees will learn to perform maintenance in the Aircraft Carrier Tactical Support Center (CV-TSC) Operating System (O/S). Trainees will be introduced to the troubleshooting and maintenance procedures of the AN/SQQ-34C(V)2 O/S including safety and security requirements. Although some of the documents referenced in this lesson are classified, all the information contained herein is extracted from unclassified portions of the documents.

1. Lesson Introduction

    a. The purpose of this lesson is to introduce the troubleshooting and maintenance procedures for the Aircraft Carrier Tactical Support Center (CV-TSC) Operating System (O/S). Improper performance may compromise the system and mission readiness. The AN/SQQ-34C(V)2 O/S must be capable to support the Anti-Submarine Warfare (ASW), Surface Warfare (SUW), Under Sea Warfare (USW), and Search and Rescue (SAR) missions on an aircraft carrier.

    b. The lesson covers the following:

        (1) CV-TSC Maintenance Personnel and Equipment Safety

        (2) CV-TSC Computer Systems Security Requirements

        (3) CV-TSC Computer Operating System Events I

        (4) CV-TSC Computer Systems Troubleshooting Procedures I

        (5) CV-TSC Computer Systems Maintenance Procedures I

        (6) CV-TSC Computer Systems Maintenance Personnel and Equipment Safety

        (7) CV-TSC Computer Systems Maintenance Security Requirements

        (8) CV-TSC Computer Operating Systems Events II

        (9) CV-TSC Computer Systems Troubleshooting Procedures II

        (10) CV-TSC Computer Systems Maintenance Procedures II

Estimated Time to Train (TTT): 7.05 hours

Lab Time: ☒ Yes ☐ No

Comment [FV1]:

Section 1.4.1			
Section 1	CV-TSC Maintenance Personnel and Equipment Safety		
ELO Number:	1.4.1		
ELO Statement:	Describe the personnel and equipment safety precautions that are to be observed while performing maintenance procedures using computer operating systems		
ELO Conditions:	Given applicable documentation and directives		
ELO Standards:	In accordance with applicable technical manuals and publications		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Remembering **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Concept

Design Strategy	
ELO Number: 1.4.1	**Estimated TTT:** 0.21 hours
Reference:	

- Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)
- OPNAVINST 5100.23 (series), Navy Safety and Occupational Health (SOH) Program Manual

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☒ ICW 2 ☐ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☐ System Simulation ☐ Actual Equipment ☐ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☒ Level 2 ☐ Level 3 ☐ Level 4	☐ Coaching ☐ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☐ Scenario-Based/Problem-based Learning ☐ Thematic Storytelling ☐ Tutorial ☐ Drill/Practice ☒ Presentation ☐ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☒ Knowledge Test ☐ Performance Test

Instructional Media: 2D images and illustrations that enhance or depict the learning content. • Graphics of the following operation: o Sailor cleaning monitor/display o Sailor performing maintenance for ESD equipment
Video or Animation Clip 1: N/A
Video or Animation Clip 1 Estimated Time: N/A
Video or Animation Clip 1 Summary: N/A

Content Outline

1. Introduction

    a. The purpose of this section is to introduce the personnel and equipment safety precautions. Trainees shall observe these precautions in order to perform maintenance procedures using computer operating systems and achieve the highest readiness at the Aircraft Carrier Tactical Support Center (CV-TSC).

        (1) Everyone is responsible for safety.

        (2) To prevent mishaps and injuries, observe all safety regulations, use all safety devices and guards when working with machines, and learn to control your work and actions to avoid danger.

    b. This section covers the following:

        (1) General Safety Standards

        (2) Definition of Terms

        (3) Personnel Safety

        (4) Equipment Safety

2. General Safety Standards

    a. General safety information is located throughout the Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System that pertains to electrical, mechanical, lifting, and crushing hazards.

    b. The IETM also contain safety information for:

        (1) Hazardous Material (HAZMAT)

        (2) Personal Protective Equipment (PPE)

        (3) Safety publications and instructions

3. Definition of Terms

    a. Warning: An operating procedure, practice, or condition, that may result in injury or death if not carefully observed or followed.

    b. Caution: An operating procedure, practice, or condition, that may result in damage to equipment if not carefully observed or followed.

    c. Note: An operating procedure, practice, or condition, essential to emphasize.

    d. Shall: Means a procedure is mandatory.

    e. Must: Directive in nature and require mandatory compliance.

    f. Should: Means a procedure is recommended.

g. May: Means a procedure is optional.

h. Will: Indicates futurity and never indicates any degree of requirement for application of a procedure.

4. Personnel Safety

a. The following general safety precautions are not related to any specific procedures.

(1) High Voltages

(a) Main power sources must be secured and tagged out IAW shipboard procedures before working in areas where high voltages are present.

(b) Dangerous voltages exist within the equipment and may prove fatal if contacted by operating or maintenance personnel. Extreme caution must be exercised when working on this equipment. In addition to high voltage components, power supplies are capable of producing very high currents. Remove all jewelry when working on electronic components.

(c) Personnel working with or near high voltage should be familiar with modern methods of resuscitation. Such information may be obtained from the Bureau of Medicine and Surgery.

(2) Two Person Integrity

(a) Under no circumstances should any person reach certain identified equipment for the purpose of servicing or adjusting the equipment without immediate presence or assistance of another person capable of rendering aid.

(b) No unqualified person shall operate or service equipment unless under direct supervision of a qualified person.

(3) Beryllium Oxide

(a) There are components in certain identified equipment that contain beryllium oxide.

(b) Thermal insulators used under some integrated circuits, transistors, and diodes.

(c) Do not scrape, sand, grind, or otherwise produce beryllium dust or powder that may be inhaled.

(d) Beryllium dust may be carcinogenic and is hazardous to your health when inhaled.

b. Personnel must understand and apply these precautions during many phases of operation and maintenance of the equipment.

5. Equipment Safety

a. Corrosion

(1) Clean the screen surface of the display with a sponge or soft cleaning cloth. DO NOT use cleaning agents such as aromatic hydrocarbons or chlorinated solvents, abrasive cleaning agents, glass cleaner, or tissue paper. Use non-aggressive glass cleaning products such as mild liquid detergent and a dampened, soft, lint-free cloth.

(2) Cleaning agents such as aromatic hydrocarbons or chlorinated solvents must not be used. They can damage the case material and components. Clean console surfaces only with a mild liquid detergent and a dampened, soft, lint-free cloth.

b. Electrostatic Discharge (ESD)

(1) Sources

(a) The relative motion or separation of materials or the flow of liquids, vapors, or gases generates ESD.

(b) Common sources of ESD include personnel, items made of plain plastics, and processing equipment.

(c) ESDS parts include microcircuits, discrete semiconductors, thick and thin film resistors, chips, and hybrid devices.

(2) Precautions

(a) ESD can damage parts by direct contact with a charged source or from charges induced by an electrostatic field.

(b) Treat all assemblies and modules in the CV-TSC as ESDS parts.

(c) Static Electricity can damage electronic devices. To avoid damage, keep static-sensitive devices in ESD-protective packages until ready for installation.

(3) Handling

(a) Personnel handling ESDS parts must wear a skin-contact wrist, leg, or ankle ground strap and should wear protective smocks.

(b) The function of the strap is to rapidly dissipate personnel static charges safely to ground and equalize personnel static levels with that of the work surfaces.

(c) In lieu of a personnel ground strap, alternate personnel grounding methods could be used, consisting of conductive shoes, conductive chairs, heel straps, and ESD protective floors.

(4) Procedure

(a) Prior to touching an ESDS part, attach personnel ground strap to wrist and connect the other end to the console or chassis ground.

(b) Keep parts in their original ESD protective packaging until ready for use. Upon REMOVAL of the failed ESDS part, package in ESD protective packaging material.

(c) Dissipate any accumulated charge on the ESD protective package by grounding the ESD protective package. Alternatively, charges can be removed by grounded personnel touching the package.

(d) Open package at the connector end if possible. Do not touch leads, pins, or circuit traces while handling ESDS parts. Remove the ESDS part from the ESD protective package and install the item in the equipment.

      (e) Perform all other required maintenance actions, such as tightening fasteners and replacement of covers, prior to REMOVAL of the personnel ground strap.

  c. Heavy Equipment

    (1) Equipment weighs in excess of 40 pounds.

    (2) Two persons are required to remove or replace the equipment.

  d. Excessive Force

    (1) The Line-Replaceable Units (LRU) should slide smoothly into place.

    (2) If resistance is met while inserting or removing an LRU, stop the procedure.

    (3) Inspect and determine if a mechanical problem exists.

  e. Component Removal

    (1) The equipment must always be powered off prior to removal or insertion of components.

    (2) Failure to do this may result in current surges that can destroy sensitive components.

  f. Failure to comply with these precautions during many phases of maintenance could result in injury to personnel or damage to equipment.

6. Knowledge Check 1:

Which of the following may be the cause of an Electrostatic Discharge (ESD)? (Select all that apply)

a. Discrete semiconductors

b. Flow of liquids

c. Lost power

d. Personnel

7. Knowledge Check 2:

Which of the following identifies an operating procedure, practice, or condition, that may result in injury or death if not carefully observed or followed?

a. Hazzard

b. Warning

c. Caution

  d. Note

8. Knowledge Check 3:

  Which of the following means a procedure is mandatory? (Select all that apply)

  a. Shall

  b. Should

  c. May

  d. Will

9. Section Summary

  a. The purpose of this section was to introduce the personnel and equipment safety precautions. Trainees should now have a foundational understanding of these precautions in order to perform maintenance procedures using computer operating systems at the CV-TSC.

10. Performance Support (PS): Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)

Section 1.4.2			
Section 2	CV-TSC Computer Systems Security Requirements		
ELO Number:	1.4.2		
ELO Statement:	Describe the security requirements that are to be observed while performing maintenance procedures using computer operating systems		
ELO Conditions:	Given applicable documentation and directives		
ELO Standards:	In accordance with applicable technical manuals and publications		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Remembering **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Concept

Design Strategy	
ELO Number: 1.4.2 CV-TSC Computer Systems Security Requirements	**Estimated TTT:** 0.22 hours

Reference(s):

- Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)
- OPNAVINST 5510.60 (series), Office of the Chief of Naval Operations (OPNAV) Security Regulations

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☒ Self-Directed Interactive Training (SDIT) ☐ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☒ ICW 2 ☐ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☐ System Simulation ☐ Actual Equipment ☒ Step-by-Step Guide ☒ Demo Animation ☒ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☒ Level 2 ☐ Level 3 ☐ Level 4	☐ Coaching ☒ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☐ Scenario-Based/Problem-based Learning ☒ Thematic Storytelling ☒ Tutorial ☐ Drill/Practice ☐ Presentation ☐ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☒ Knowledge Test ☐ Performance Test

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Instructional Media: 2D images and illustrations that enhance or depict the learning content.

- 2D illustration of the AN/SQQ-89A(V)15
- 2D illustration of the AN/SQQ-89A(V)15 display - sanitized without classified information
- Graphics of the following operations:
    o Creating a New User for the AN/SQQ-89A(V)15 (example)

Video or Animation Clip 1: N/A

Video or Animation Clip 1 Estimated Time: N/A

Video or Animation Clip 1 Summary: N/A

Content Outline

1. Introduction

    a. The purpose of this section is to introduce the security requirements. Trainees shall observe these requirements in order to perform maintenance procedures using computer operating systems and achieve the highest readiness at the Aircraft Carrier Tactical Support Center (CV-TSC).

    b. This section covers the following:

    (1) Security Classifications

    (2) Security Requirements and Procedures

    (3) AN/SQQ-34C(V)2

2. Security Classifications

    a. Information which requires protection against unauthorized disclosure in the interest of national security must be classified with one of only three designations:

    (1) Top Secret: Applies only to information, the unauthorized disclosure of which could reasonably be expected to cause exceptionally grave damage to national security.

    (2) Secret: Applies only to information, the unauthorized disclosure of which could reasonably be expected to cause serious damage to national security.

    (3) Confidential: Applies only to information, the unauthorized disclosure of which could reasonably be expected to cause damage to national security.

    b. The markings "For Official Use Only" and "Limited Official Use" cannot be used to identify classified information, nor can modifying terms be used in conjunction with authorized classification designations, such as "Secret Sensitive".

        (1) For Official Use Only (FOUO): Applies to information, records, and other materials which have not been given a security classification under the criteria of an Executive order, but which contain information which may be withheld from the public for one or more of the reasons cited in Freedom of Information Act (FOIA).

        (2) Unclassified: Applies to information, records, and other materials available to the public.

3. Security Requirements and Procedures

    a. The OPNAVINST 5510.60 (series) provides the security policy and procedural guidance for the protection of classified information and materials.

    b. All information, records, and other materials shall be handled in accordance with security procedures.

        (1) Apply common sense

        (2) Steps shall be taken to minimize the risk of access by unauthorized personnel.

        (3) Ask someone when in doubt

        (4) Report all security incidents immediately in accordance with local procedures and security regulations.

    c. Operators and Technicians

        (1) Shall recognize the classification of the data being utilized when accessing any operating system.

        (2) Must be aware of the potential threat while using computer hardware and software at all times.

        (3) Must follow all regulations in regards to handling, storage, and dissemination of classified data.

4. AN/SQQ-34C(V)2

    a. Consists of hardware and software to execute the CV-TSC software and display the tactical results.

    b. A Program of Record system with security settings and software configuration authorized by Platform IT Risk Approval.

    c. Configuration is controlled by the Program Manager as coordinated through the In-Service Engineering Agent (ISEA):

        (1) The Program Manager for AN/SQQ-34C(V)2 is NAVSEA Program Executive Office (PEO) Integrated Warfare Systems 5 (IWS 5).

        (2) The In-Service Engineering Agent (ISEA) for AN/SQQ-34C(V)2 is NUWC Division Keyport, Code 44.

5. Knowledge Check 1:

Which of the following information could reasonably be expected to cause exceptionally grave damage to national security if disclosed to unauthorized personnel?

    a. Top Secret

    b. Secret

    c. Confidential

    d. For Official Use Only

6. Knowledge Check 2:

   Which of the following instructions provide the security policy and procedural guidance for the protection of classified information and materials?

   a. OPNAVINST 5100.23 (series)

   b. SECNAVINST 5510.30 (series)

   c. SECNAVINST 5510.36 (series)

   d. OPNAVINST 5510.60 (series)

7. Knowledge Check 3:

   What should be done immediately after a security incident?

   a. Take the appropriate steps to eliminate access to unauthorized personnel

   b. Report it in accordance with local procedures and security regulations

   c. Apply common sense

   d. Ask someone when in doubt

8. Section Summary

   a. The purpose of this section was to introduce the security requirements. Trainees should now have a foundational understanding of these requirements in order to perform maintenance procedures using computer operating systems at the CV-TSC.

9. Performance Support (PS): OPNAVINST 5510.60 (series), Office of the Chief of Naval Operations (OPNAV) Security Regulations

Section 1.4.3	
Section 3	CV-TSC Computer Operating System Events I

ELO Number:	1.4.3		
ELO Statement:	Describe the sequence of events that may occur while utilizing computer operating systems during casualty, degraded, and not full-mission capable mode(s) of operation		
ELO Conditions:	Given applicable documentation and directives		
ELO Standards:	To 100% accuracy		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Remembering **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Concept

Design Strategy	
ELO Number: 1.4.3 CV-TSC Computer Operating System Events I	**Estimated TTT:** 0.22 hours
Reference(s):	

- Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)
- McCarty B., Learning Red Hat Linux, 3rd Edition, O'Reilly Media (2003)

Comment [FV2]: Based on the KCR for UID **STG-0062-211.**
Need GFI to verify information is valid.

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☒ ICW 2 ☐ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☐ System Simulation ☐ Actual Equipment ☒ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☒ Level 2 ☐ Level 3 ☐ Level 4	☐ Coaching ☐ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☐ Thematic Storytelling ☐ Tutorial ☐ Drill/Practice ☒ Presentation ☐ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☒ Knowledge Test ☐ Performance Test

Instructional Media: 2D images and illustrations that enhance or depict the learning content.

- Graphics of the following AN/SQQ-34C(V)2 operating system displays:
  - Log in
  - Root
  - CV-TSC Dashboard

Video or Animation Clip 1: N/A

Video or Animation Clip 1 Estimated Time: N/A

Video or Animation Clip 1 Summary: N/A

Content Outline

1. Introduction

    a. The purpose of this section is to introduce the sequence of events that may occur while utilizing computer operating systems during casualty, degraded, and not-full-mission capable mode(s) of operation. Trainees shall identify these events to properly operate the AN/SQQ-34C(V)2 in order to support the Anti-Submarine Warfare (ASW) and achieve the highest mission readiness for the Aircraft Carrier Tactical Support Center (CV-TSC).

    b. This section covers the following:

    (1) Basic Linux Operating System (O/S)

    (2) Administrator Functions

    (3) Emergency Shutdown

2. Basic Linux O/S

    a. The concepts that underline the graphical and non-graphical system organizes data as follow:

    (1) Filesystems

    (2) Directories

    (3) Files

    b. When these filesystems, directories, and files can become corrupt and/or deleted (dropped out) over time:

    (1) The O/S becomes unstable, degraded or unusable during normal operation.

    (2) The GUI may become degraded and/or freeze up.

3. Administrator Requirements

    a. The administrator performs system functions using command line interfaces to:

    (1) Communicate with external units

    (2) Stop the O/S

    (3) Reload the O/S

    (4) Reboot functional areas

    (5) Reboot external hardware/software

    b. The administrator verifies the operating system software file directories and file structures are present and complete to understand if the casualty has:

       (1) Degraded the system as a whole.

       (2) Degraded a program or segment.

       (3) Evaluate the operability of the system.

       (4) Evaluate the mission capability of the system.

    c. The administrator should utilize all applicable documentation to help understand how any degradation of the O/S effects the system operability and capabilities.

4. Emergency Shutdown

    a. Performed by securing the appropriate circuit breaker(s) in ships power distribution panels.

    b. Used when equipment is deranged due to fire, flooding or other physical damage.

    c. Individual AN/SQQ-34C(V)2 units do not provide power sources to other units.

       (1) All power to an individual unit is supplied from ships power distribution panels.

       (2) Signal connections between units are less than 5 volt signals.

    d. Deranged equipment should be powered off by emergency means rather than depending on normal shutdown and power off procedures.

    e. Switches on the units of AN/SQQ-34C(V)2 do not remove power from all components within the unit and should not be used to shutdown deranged equipment.

       (1) Some components are energized from multiple sources like the Interface Processing Subsystem (IPS) and Common Processing Subsystem (CPS).

       (2) Ensure that all power sources are secured at power distribution panels.

NOTE:

If equipment is not deranged, normal shutdown and power-off procedures should be used to prevent corruption of software. After an emergency shutdown, data corruption may occur on some components. Follow trouble-shooting procedures to isolate any components corrupted by an unexpected power loss. For example, TMS hard drives may require replacement after unexpected power-off of the TMS.

5. Knowledge Check 1:

Which of the following system functions are performed by an administrator using command line interfaces? (Select all that apply)

    a. Evaluate the operability of the system

    b. Communicate with external units

    c. Reboot functional areas

    d. Evaluate the mission capability of the system

6. Knowledge Check 2:

Which of the following is a result of the filesystems, directories, and files becoming corrupted over time? (Select all that apply)

    a. The operating system becomes unstable during normal operation.

    b. The operating system becomes obsolete during normal operation.

    c. The operating system becomes degraded during normal operation.

    d. The operating system becomes unusable during normal operation.

7. Knowledge Check 3:

Which of the following should be powered off by emergency means rather than depending on normal shutdown and power off procedures?

    a. Common Processing Subsystem (CPS)

    b. Deranged equipment

    c. Power distribution panel

    d. Interface Processing Subsystem (IPS)

8. Section Summary

    a. The purpose of this section was to introduce the sequence of events that may occur while utilizing computer operating systems during casualty, degraded, and not-full-mission capable mode(s) of operation. Trainees should now have a foundational understanding of these events to properly operate the AN/SQQ-34C(V)2.

9. Performance Support (PS): GDIT to develop new images and diagrams to illustrate O/S faults.

Section 1.4.4			
Section 4	CV-TSC Computer Systems Troubleshooting Procedures I		
ELO Number:	1.4.4		

ELO Statement:	Describe the troubleshooting procedures for computer operating systems		
ELO Conditions:	Given applicable documentation and directives		
ELO Standards:	To 100% accuracy		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Remembering **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Concept

Design Strategy	
ELO Number: 1.4.4 CV-TSC Computer Systems Troubleshooting Procedures I	**Estimated TTT:** 0.22 hours
Reference(s): • Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016) • McCarty B., Learning Red Hat Linux, 3rd Edition, O'Reilly Media (2003)	

Comment [FV3]: Based on the KCR for UID **STG-0062-211.**
Need GFI to verify information is valid.

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☒ ICW 2 ☐ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☐ System Simulation ☐ Actual Equipment ☒ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☒ Level 2 ☐ Level 3 ☐ Level 4	☐ Coaching ☐ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☐ Thematic Storytelling ☐ Tutorial ☐ Drill/Practice ☒ Presentation ☐ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☒ Knowledge Test ☐ Performance Test

Instructional Media: 2D images and illustrations that enhance or depict the learning content.
- Graphics of the following AN/SQQ-34C(V)2 operating system displays: - Log in   - Root   - CV-TSC Dashboard

Video or Animation Clip 1: N/A
Video or Animation Clip 1 Estimated Time: N/A
Video or Animation Clip 1 Summary: N/A

Content Outline

1. Introduction (illustration of the)

    a. The purpose of this section is to introduce the troubleshooting procedures for computer operating systems. Trainees shall identify these procedures to properly troubleshoot the AN/SQQ-34C(V)2 in order to support the Anti-Submarine Warfare (ASW) and achieve the highest mission readiness for the Aircraft Carrier Tactical Support Center (CV-TSC).

    b. This section covers the following:

     (1) Administrator Requirements

     (2) Fault Isolation

     (3) Command Line Interfaces

     (4) Software Documentation

2. Administrator Requirements

    a. The administrator should be familiar with the required file structures when an Operating System (O/S) fails, or becomes degraded.

     (1) The administrator should be able to identify:

      (a) Normal order of events to occur when the O/S is loading.

      (b) Corrupted or incorrectly named lines

      (c) Missing or out of place lines

     (2) The administrator should be able to observe:

      (a) Any conflicts between running programs

      (b) Failure during programs loading

    b. A log of any faults/repairs should be maintained to assist in future troubleshooting.

3. Fault Isolation

    a. Faults in the system will most likely be identified during operation.

    b. A table in the appropriate Interactive Electronic Technical Manual (IETM) provides entry points for troubleshooting system faults and a list of problems, indications, and possible causes.

     (1) The possible causes are listed in order to be investigated and are linked to the appropriate fault isolation procedure.

    (2) The table is not inclusive of all faults an operator might experience.

  c. Careful observation of system performance and other fault indications, along with applying system knowledge, must be used to guide the maintainer in fault isolation and repair.

    (1) The Performance Monitoring Fault Location (PMFL) function in System Administration Workspace should be consulted to identify single node faults.

    (2) Consult the Tactics, Techniques and Procedures (TTP) located on the Secret Internet Protocol Router Network (SIPRNET) for additional troubleshooting and operational information.

  d. Command line interfaces may be required to help troubleshoot the operating system if the GUI should become degraded or fail.

    (1) Assist the administrator in conducting filesystems, directories, and file reviews to verify none are out of place or corrupted.

    (2) Assist the administrator in properly rebooting, reloading and or shutting down the O/S gracefully so to not cause any greater harm to the O/S.

4. Command Line Interfaces

  a. ping

    (1) This command sends packets to the provided computer.

    (2) These packets simply request a response, and keeps track of the total number of packets sent, the number of responses, and the response time.

    (3) Can detect if a computer is available on the network and identifies the quality of the connection. The more packets lost, the worse the connection.

    (4) Often used by network technicians to help setup and maintain the network.

  b. mount

    (1) Displays the mounted devices or mounts the specified device at the specified mount point (generally a subdirectory of /mnt).

    (2) Generally requires root privileges, and serves to attach the file system found on some device to the big file tree.

    (3) The umount command will detach it again

  c. man

    (1) The Linux equivalent of HELP

    (2) The name of the command will get help documentation.

      (a) Use man-k <keyword> to find all commands with that keyword

   (b) Use man <command> to display help for that command

  (3) View and navigate pages using the following commands:

   (a) Spacebar or f: go forward a screen

   (b) b: go back a screen

   (c) Period: repeat the last command

   (d) q: quit

 d. cp

  (1) Copies files and directories.

   (a) SOURCE to DEST

   (b) Multiple SOURCE(s) to DIRECTORY

  (2) For example:

   (a) cp [OPTION]... [-T] SOURCE DEST

   (b) cp [OPTION]... SOURCE... DIRECTORY

   (c) cp [OPTION]... -t DIRECTORY SOURCE

  (3) -T, --no-target-directory: treat DEST as a normal file

  (4) -t, --target-directory=DIRECTORY: copy all SOURCE arguments into DIRECTORY

 e. fschk

  (1) Checks and optionally repairs one or more Linux file systems.

  (2) Will try to run filesystems on different physical disk drives in parallel to reduce total amount time to check all of the filesystems.

  (3) The exit code returned when multiple file systems are checked is the bit-wise OR of the exit codes for each file system that is checked.

  (4) The exit code returned is the sum of the following conditions:

   (a) 0: No errors

   (b) 1: File system errors corrected

   (c) 2: System should be rebooted

   (d) 4: File system errors left uncorrected

        (e) 8: Operational error

        (f)   16: Usage or syntax error

        (g) 32: fsck canceled by user request

        (h) 128: Shared library error

f.   init

    (1) Use if the system is already up and running

    (2) Command to start/stop the status of the system

        (a) 0: halt system

        (b) 1: single user mode

        (c) 3: multi-user mode

        (d) 5: multi-user mode with GUI

        (e) 6: reboot

g. shutdown

    (1) The Linux server must be properly shutdown prior to turning the power off to prevent the risk of damaging the operating system.

    (2) The following options provide alternatives to the execution of the shutdown command:

        (a) now: shutdown immediately

        (b) +n: n is the number of minutes to wait

        (c) -h: actually halt system, ready for power off

        (d) -r: shutdown and automatically perform a reboot

        (e) -c: cancel the shutdown

h. vi

    (1) A standard and widely used text editor that is very powerful but not easy to use.

    (2) Commands are case sensitive and all upper/lower case should be carefully noted.

i.   service

    (1) A plain ASCII file providing a mapping between friendly textual names for internet services, and their underlying assigned port numbers and protocol types.

(2) Every networking program should look into this file to get the port number (and protocol) for its service.

   j. ssh

     (1) A program for logging and executing commands into a remote machine.

     (2) Provides secure encrypted communications between two untrusted hosts over an unsecure network.

     (3) Connects and logs into a specified hostname.

       (a) The user must prove his/her identity to the remote machine

       (b) Several methods are used for the identification depending on the protocol version.

   k. ifconfig

     (1) Must have root privileges in order to use this command.

     (2) Allows the operating system to setup network interfaces.

     (3) Allows the user to view information about the configured network interfaces.

5. Software Documentation

   a. Utilized when error codes/messages are observed during a load or reboot.

   b. When an observed error code or message is not listed in the software documentation, the administrator can utilize the internet to help troubleshoot.

     (1) Software manufacturer's web site

     (2) Google (list the error code or message in the search line)

     (3) Navy Knowledge Online (NKO) references

     (4) Red Hat's web site (http://www.redhat.com)

   c. Additional free Linux websites

     (1) Bugzilla (http://bugzilla.redhat.com)

       (a) A database listing possible bugs affecting Red Hat Linux.

       (b) Provides common fixes or workarounds.

     (2) Linux Documentation Project (http://www.tldp.org)

       (a) A group of volunteers who have worked to produce:

–   Books and/or guides

–   HOWTO documents

–   Manual pages

(b) Topics range from installation to kernel programming

6. Knowledge Check 1:

Which of the following must be used to guide the maintainer in fault isolation and repair? (Select all that apply)

a. Careful observation of system performance

b. Careful observation of fault indications

c. A list of problems, indications, and possible causes

d. Application of system knowledge

7. Knowledge Check 2:

Which of the following command line interfaces sends packets to the provided computer?

a. ping

b. cp

c. fschk

d. ifconfig

8. Knowledge Check 3:

Which of the following command line interfaces checks and optionally repairs one or more Linux file systems?

a. ping

b. cp

c. fschk

d. ifconfig

9. Section Summary

a. The purpose of this section was to introduce the troubleshooting procedures for computer operating systems. Trainees should now have a foundational understanding of the procedures to properly troubleshoot the AN/SQQ-34C(V)2.

10. Performance Support (PS): Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)

Section 1.4.5			
Section 5	CV-TSC Computer Systems Maintenance Procedures I		
ELO Number:	1.4.5		
ELO Statement:	Describe the maintenance procedures for computer operating systems, including hard drive integrity checks		
ELO Conditions:	Given applicable documentation and directives		
ELO Standards:	To 100% accuracy		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Remembering **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Concept

Design Strategy	
ELO Number: 1.4.5 CV-TSC Computer Systems Maintenance Procedures I	**Estimated TTT:** 0.22 hours
Reference(s):	
• Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016) • McCarty B., Learning Red Hat Linux, 3rd Edition, O'Reilly Media (2003)	

Comment [FV4]: Based on the KCR for UID **STG-0062-211.**
Need GFI to verify information is valid.

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☒ ICW 2 ☐ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☐ System Simulation ☐ Actual Equipment ☒ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☒ Level 2 ☐ Level 3 ☐ Level 4	☐ Coaching ☐ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☐ Thematic Storytelling ☐ Tutorial ☐ Drill/Practice ☒ Presentation ☐ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☒ Knowledge Test ☐ Performance Test

Instructional Media: 2D images and illustrations that enhance or depict the learning content.

- Graphics of the following AN/SQQ-34C(V)2 operating system displays:
    - Log in
    - Root
    - CV-TSC Dashboard

Video or Animation Clip 1: N/A

Video or Animation Clip 1 Estimated Time: N/A

Video or Animation Clip 1 Summary: N/A

Content Outline

1. Introduction (illustration of the)

    a. The purpose of this section is to introduce the maintenance procedures for computer operating systems, including file clean up, hardware changes, and software updates. Trainees shall follow these procedures to properly maintain the AN/SQQ-34C(V)2 in order to support the Anti-Submarine Warfare (ASW) and achieve the highest mission readiness for the Aircraft Carrier Tactical Support Center (CV-TSC).

    b. This section covers the following:

        (1) Operating System (O/S) Maintenance

2. O/S Maintenance

    a. Use the SVD documentation while conducting maintenance on the O/S

    b. Hard Drive Integrity Check

        (1) File clean up

            (a) Deleting of old files

            (b) Archiving of old files

        (2) Hardware changes

            (a) Addressing new hardware

            (b) Verifying addresses are correct

        (3) Software updates

            (a) Adding software

            (b) Deleting software

    c. Maintenance Log

        (1) Document everything done and/or seen while performing maintenance on the O/S to allow:

            (a) Data to be recorded and used for feedback.

            (b) Administrator to administrator turnover of known issues and associated workarounds.

        (2) Aids in troubleshooting lists the last known work done on the O/S.

Comment [FV5]: Need GFI to describe procedures. McCarty B., Learning Red Hat Linux, 3rd Edition, O'Reilly Media (2003) as per KCR.

S2025 FY19 RRL CC – Sonar Technician (SURFACE) (STG) Rating   Contract #: N61340-19-F-0127

TEIN U-ASW-2005 / CV-TSC Operating Systems Maintenance – M1, L4   F006 – IMDP/LDS

3. Maintenance Support Procedures

 a. The maintenance support procedures section is located in the Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68.

 b. This section contains methods that assist in the technical efforts to perform the diagnostics, trouble localization, and corrective maintenance.

4. Knowledge Check 1:

Which of the following procedures are part of a file clean up? (Select all that apply)

 a. Deleting software

 b. Deleting of old files

 c. Archiving of old files

 d. Adding software

5. Knowledge Check 2:

Which of the following procedures are part of a hardware change? (Select all that apply)

 a. Addressing new hardware

 b. Archiving of old files

 c. Verifying addresses are correct

 d. Deleting software

6. Knowledge Check 3:

Which of the following procedures are part of a software update? (Select all that apply)

 a. Adding software

 b. Deleting of old files

 c. Archiving of old files

 d. Deleting software

7. Section Summary

     a. The purpose of this section was to introduce the maintenance procedures for computer operating systems, including file clean up, hardware changes, and software updates. Trainees should now have a foundational understanding of these procedures to properly maintain the AN/SQQ-34C(V)2.

8. Performance Support (PS): Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)

Section 1.4.6			
Section 6	CV-TSC Computer Systems Maintenance Personnel and Equipment Safety		
ELO Number:	1.4.6		
ELO Statement:	Apply personnel and equipment safety precautions that are to be observed while performing normal operation procedures using computer operating systems		
ELO Conditions:	Given applicable documentation, directives and equipment		
ELO Standards:	IAW applicable safety requirements, technical documentation, and directives		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Applying **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Procedure

Design Strategy	
ELO Number: 1.4.6 CV-TSC Computer Systems Maintenance Personnel and Equipment Safety	**Estimated TTT:** 2.50 hours

Reference(s):

- Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)

- OPNAVINST 5100.23 (series), Navy Safety and Occupational Health (SOH) Program Manual

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☒ ICW 2 ☐ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☒ System Simulation ☐ Actual Equipment ☐ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☒ Level 2 ☐ Level 3 ☐ Level 4	☒ Coaching ☐ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☐ Thematic Storytelling ☐ Tutorial ☒ Drill/Practice ☐ Presentation ☒ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☐ Knowledge Test ☒ Performance Test

Instructional Media: TBD

Video or Animation Clip 1: N/A

Video or Animation Clip 1 Estimated Time: N/A

Video or Animation Clip 1 Summary: N/A

Content Outline
1. TBD

Section 1.4.7			
Section 7	CV-TSC Computer Systems Maintenance Security Requirements		
ELO Number:	1.4.7		
ELO Statement:	Apply the security requirements that are to be observed while performing normal operation procedures using computer operating systems		
ELO Conditions:	Given applicable documentation, directives and equipment		
ELO Standards:	IAW applicable safety requirements, technical documentation, and directives		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Applying **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Procedure

Design Strategy	
ELO Number: 1.4.7 CV-TSC Computer Systems Maintenance Security Requirements	**Estimated TTT:** 0.83 hours
Reference(s): • Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016) • OPNAVINST 5510.60 (series), Office of the Chief of Naval Operations (OPNAV) Security Regulations	

Comment [FV6]: Recommend removing section and cover this material in the troubleshooting/maintenance performance labs.

Comment [FV7]: Need additional guidance to accommodate sections involving the application of safety, security, and interpreting the sequence of events of a particular action. This actions are usually done together as part of an event like troubleshooting and/or maintenance.

S2025 FY19 RRL CC – Sonar Technician (SURFACE) (STG) Rating
TEIN U-ASW-2005 / CV-TSC Operating Systems Maintenance – M1, L4

Contract #: N61340-19-F-0127
F006 – IMDP/LDS

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☒ Self-Directed Interactive Training (SDIT) ☐ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☐ ICW 2 ☒ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☒ System Simulation ☐ Actual Equipment ☐ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☐ Level 2 ☒ Level 3 ☐ Level 4	☐ Coaching ☒ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☒ Thematic Storytelling ☐ Tutorial ☒ Drill/Practice ☐ Presentation ☒ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☐ Knowledge Test ☒ Performance Test

Instructional Media: TBD
Video or Animation Clip 1: N/A
Video or Animation Clip 1 Estimated Time: N/A
Video or Animation Clip 1 Summary: N/A

Content Outline

1. TBD

Comment [FV8]: Recommend removing section and cover this material in the troubleshooting/maintenance performance labs.

Comment [FV9]: Need additional guidance to accommodate sections involving the application of safety, security, and interpreting the sequence of events of a particular action. This actions are usually done together as part of an event like troubleshooting and/or maintenance.

Section 1.4.8			
Section 8	CV-TSC Computer Operating Systems Events II		
ELO Number:	1.4.8		
ELO Statement:	Interpret the sequence of events that may occur while utilizing computer operating systems during casualty, degraded, and not-full-mission capable mode(s) of operation		
ELO Conditions:	Given applicable documentation, directives and equipment		
ELO Standards:	IAW applicable documentation and procedures to 100% level of accuracy		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Applying **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Procedure

Design Strategy	
ELO Number: 1.4.8 CV-TSC Computer Operating Systems Events II	**Estimated TTT:** 1.12 hours
Reference(s):	
• Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)	

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☒ ICW 2 ☐ ICW 3 ☐ ICW 4/Virtual Sim ☐ Virtual SIM w/Hardware ☒ System Simulation ☐ Actual Equipment ☐ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☒ Level 2 ☐ Level 3 ☐ Level 4	☐ Coaching ☒ Game-Based Learning ☐ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☒ Thematic Storytelling ☐ Tutorial ☒ Drill/Practice ☐ Presentation ☒ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☐ Knowledge Test ☒ Performance Test

Instructional Media: TBD	
Video or Animation Clip 1: N/A	
Video or Animation Clip 1 Estimated Time: N/A	
Video or Animation Clip 1 Summary: N/A	

Content Outline

1. TBD

Comment [FV10]: Recommend removing section and cover this material in the troubleshooting/maintenance performance labs.

Comment [FV11]: Need additional guidance to accommodate sections involving the application of safety, security, and interpreting the sequence of events of a particular action. This actions are usually done together as part of an event like troubleshooting and/or maintenance.

Section 1.4.9			
Section 9	CV-TSC Computer Systems Troubleshooting Procedures II		
ELO Number:	1.4.9		
ELO Statement:	Perform troubleshooting procedures for computer operating systems		
ELO Conditions:	Given applicable technical documentation and equipment		
ELO Standards:	IAW applicable documentation and procedures to 100% level of accuracy		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Applying **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Procedure

Design Strategy	
ELO Number: 1.4.9 CV-TSC Computer Systems Troubleshooting Procedures II	**Estimated TTT:** 0.18 hours
Reference(s): • Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)	

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☐ ICW 2 ☐ ICW 3 ☒ ICW 4/Virtual Sim ☒ Virtual SIM w/Hardware ☒ System Simulation ☐ Actual Equipment ☐ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☐ Level 2 ☐ Level 3 ☒ Level 4	☐ Coaching ☒ Game-Based Learning ☒ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☒ Thematic Storytelling ☐ Tutorial ☒ Drill/Practice ☐ Presentation ☒ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☐ Knowledge Test ☒ Performance Test

Instructional Media: 2D images and illustrations that enhance or depict the learning content.

- Diagrams of the following procedures:
  - Power Troubleshooting
  - Power Subsystem Fault Isolation
  - Blade Center Chassis Fault Isolation
  - Network Processing Troubleshooting
- Graphics of the following AN/SQQ-34C(V)2 operating system displays:
  - Log in
  - Root
  - CV-TSC Dashboard

Video or Animation Clip 1: N/A

Video or Animation Clip 1 Estimated Time: N/A

Video or Animation Clip 1 Summary: N/A

Content Outline

1. Introduction

    a. The purpose of this section is to practice identifying operating system faults and diagnosing when to reload the operating system. The Job Sheet outlining the troubleshooting procedures for the computer operating system is not a substitute for the actual technical manual. Trainees are required to locate, identify, and follow these procedures to properly troubleshoot the AN/SQQ-34C(V)2 in order to support the Anti-Submarine Warfare (ASW) and achieve the highest mission readiness for the Aircraft Carrier Tactical Support Center (CV-TSC).

    b. The Trainees will perform the following in a simulated exercise outlined in a Job Sheet:

    (1) Safety Precautions

    (2) Security Requirements

    (3) Fault Isolation

    (4) O/S Loading Troubleshooting

    (5) O/S Log in Troubleshooting

2. Safety Precautions

    a. Apply personnel and equipment safety precautions that are to be observed while performing troubleshooting procedures for the AN/SQQ-34C(V)2 Operating System (O/S).

    (1) Remove watches, rings, and other miscellaneous jewelry prior to entering lab.

    (2) Ensure electrical power to equipment is in the OFF position.

    (3) Inspect the physical condition of the equipment and cables/wiring.

    (4) Ensure equipment is properly installed in mountings and no obstructions exist around any mechanical equipment.

    (5) Verify that all test equipment used is within the current calibration cycle.

    (6) Read all instructions, warnings, and cautions for each type of Hazardous Material (HAZMAT) prior to use.

    b. Call a Training Time Out (TTO) if safety becomes a concern.

    c. Immediately report all mishaps to the instructor or class safety petty officer.

NOTE: The instructor will verify the application of all safety precautions prior to continuing.

3. Security Requirements

    a. Apply the security requirements that are to be observed while performing troubleshooting procedures for the AN/SQQ-34C(V)2 O/S.

    NOTE: The instructor will verify the application of all security requirements prior to continuing.

4. Fault Isolation

    a. Interpret the sequence of events that may occur while performing troubleshooting procedures in the AN/SQQ-34C(V)2 O/S during casualty, degraded, and not-full-mission capable mode(s) of operation.

        (1) Faults in the system will most likely be identified during operation.

        (2) Careful observation of system performance and other fault indications, along with applying system knowledge, must be used to guide the maintainer in fault isolation and repair.

    b. The Fault Isolation Table in the Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System provides entry points for troubleshooting system faults.

        (1) The table provides a list of problems, indications, and possible causes.

        (2) The possible causes are listed in order to be investigated and are linked to the appropriate fault isolation procedure.

        (3) The table is not inclusive of all faults an operator might experience.

    NOTE: The instructor will verify the fault interpretation from trainee and assign a curse of action.

5. O/S Loading Troubleshooting (Game style simulation ICW to practice troubleshooting)

    a. CV-TSC not loading or is not responsive at any workstation.

        (1) Indications

            (a) Following workstation login, CV-TSC Dashboard is not displayed on all workstations.

            (b) During operation, CV-TSC Application stops responding.

        (2) Passible Causes

            (a) System was not powered on/initialized correctly

            (b) Interface Processing Subsystem (IPS) Power Problem

            (c) Common Processing Subsystem (CPS) Power Problem

            (d) CPS Management Blade or Processing Blade Failure (System Controller)

          (e) Network Problem

    b. CV-TSC not loading or is not responsive at a single workstation.

       (1) Indications

          (a) Following workstation login, CV-TSC Dashboard is not displayed

          (b) During operation, system stops responding

       (2) Passible Causes

          (a) Workstation login using root account

          (b) Workstation Resource Manager application did not start

          (c) Network Problem

6. O/S Log in Troubleshooting (Game style simulation ICW to practice troubleshooting)

    a. Unable to log in to Common Display Subsystem (CDS) workstation as operator.

       (1) Indication

          (a) Able to log on to CDS as root, but not as operator when the correct password is used.

       (2) Passible Causes

          (a) Operator account is locked out on CDS workstation due to wrong password entry.

    b. Unable to log in as root.

       (1) Indications

          (a) Correct password for root is lost.

        Note: Root account cannot be permanently locked out; however restart of node may be required to re-enable root.

       (2) Passible Causes

          (a) Contact In-Service Engineering Activity (ISEA) for assistance. System operation can continue without using root level login; however, maintenance actions are impaired.

          (b) Restore node to previous image with known password using appropriate Restore System Node procedure.

          (c) Change node password to the current known password for the restored node.

7. Knowledge Check assessing safety precautions

8. Knowledge Check assessing fault isolation

9. Knowledge Check assessing O/S troubleshooting procedures

10. Section Summary

   a. The purpose of this section was to practice troubleshooting procedures for the AN/SQQ-34C(V)2 O/S. Trainees should now be able to identify faults and when to reload the O/S.

11. Performance Support (PS): GDIT to develop a game style simulation ICW to practice troubleshooting.

Section 1.4.10			
Section 10	CV-TSC Computer Systems Maintenance Procedures II		
ELO Number:	1.4.10		
ELO Statement:	Perform maintenance procedures for computer operating systems		
ELO Conditions:	Given applicable technical documentation and equipment		
ELO Standards:	IAW applicable documentation and procedures to 100% level of accuracy		
Domains of Learning *(IAW Revised Bloom's Taxonomy)*	**Cognitive Level:** Applying **Affective Level:** N/A **Psychomotor Level:** N/A	**Learning Type** *(Select Fact, Concept, Procedure, Principle or Process)*	Procedure

Design Strategy	
ELO Number: 1.4.10 CV-TSC Computer Systems Maintenance Procedures II	**Estimated TTT:** 1.33 hours
Reference(s): • Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System for the CVN-68 (31 March 2016)	

Performance and Training Strategies:	Delivery Media Type:	Highest Level of Interactivity:	Instructional Strategies:	Assessment Strategies:
☒ Performance Support (PS) ☐ Structured On-The-Job Training (SOJT) ☐ Self-Directed Interactive Training (SDIT) ☒ Instructor-Facilitated Interactive Training (IFIT)	☐ ICW 1 ☐ ICW 2 ☐ ICW 3 ☒ ICW 4/Virtual Sim ☒ Virtual SIM w/Hardware ☒ System Simulation ☐ Actual Equipment ☐ Step-by-Step Guide ☐ Demo Animation ☐ Demo Video ☐ Checklist/Worksheet ☒ Image/Diagrams ☐ Decision Tables/Array	☐ Level 1 ☐ Level 2 ☐ Level 3 ☒ Level 4	☐ Coaching ☒ Game-Based Learning ☒ Instructional Simulation ☐ Mentoring ☐ Micro Learning ☒ Scenario-Based/Problem-based Learning ☒ Thematic Storytelling ☐ Tutorial ☒ Drill/Practice ☐ Presentation ☒ Demonstration ☐ Practical Application ☐ Other _____	☒ Knowledge Check ☐ Knowledge Test ☒ Performance Test

Instructional Media: 2D images and illustrations that enhance or depict the learning content.

- Diagrams of the following procedures:
  - Power Troubleshooting
  - Power Subsystem Fault Isolation
  - Blade Center Chassis Fault Isolation
  - Network Processing Troubleshooting
- Graphics of the following AN/SQQ-34C(V)2 operating system displays:
  - Log in
  - Root
  - CV-TSC Dashboard

Video or Animation Clip 1: N/A

Video or Animation Clip 1 Estimated Time: N/A

S2025 FY19 RRL CC – Sonar Technician (SURFACE) (STG) Rating
TEIN U-ASW-2005 / CV-TSC Operating Systems Maintenance – M1, L4

Contract #: N61340-19-F-0127
F006 – IMDP/LDS

Video or Animation Clip 1 Summary: N/A

Content Outline

1. Introduction (illustration of the)

   a. The purpose of this section is to practice maintenance of the operating system. The Job Sheet outlining the maintenance procedures for the computer operating system is not a substitute for the actual technical manual. Trainees are required to locate, identify, and follow these procedures to properly maintain the AN/SQQ-34C(V)2 in order to support the Anti-Submarine Warfare (ASW) and achieve the highest mission readiness for the Aircraft Carrier Tactical Support Center (CV-TSC).

   b. The Trainees will perform the following in a simulated exercise outlined in a Job Sheet:

      (1) Safety Precautions

      (2) Security Requirements

      (3) Fault Isolation

      (4)

2. Safety Precautions

   a. Apply personnel and equipment safety precautions that are to be observed while performing maintenance procedures for the AN/SQQ-34C(V)2 Operating System (O/S).

      (1) Remove watches, rings, and other miscellaneous jewelry prior to entering lab.

      (2) Ensure electrical power to equipment is in the OFF position.

      (3) Inspect the physical condition of the equipment and cables/wiring.

      (4) Ensure equipment is properly installed in mountings and no obstructions exist around any mechanical equipment.

      (5) Verify that all test equipment used is within the current calibration cycle.

      (6) Read all instructions, warnings, and cautions for each type of Hazardous Material (HAZMAT) prior to use.

   b. Call a Training Time Out (TTO) if safety becomes a concern.

   c. Immediately report all mishaps to the instructor or class safety petty officer.

   NOTE: The instructor will verify the application of all safety precautions prior to continuing.

3. Security Requirements

    a. Apply the security requirements that are to be observed while performing maintenance procedures for the AN/SQQ-34C(V)2 O/S.

    NOTE: The instructor will verify the application of all security requirements prior to continuing.

4. Fault Isolation

    a. Interpret the sequence of events that may occur while performing maintenance procedures in the AN/SQQ-34C(V)2 O/S during casualty, degraded, and not-full-mission capable mode(s) of operation.

        (1) Faults in the system will most likely be identified during operation.

        (2) Careful observation of system performance and other fault indications, along with applying system knowledge, must be used to guide the maintainer in fault isolation and repair.

    b. The Fault Isolation Table in the Interactive Electronic Technical Manual (IETM) Organizational Level Description, Operation, and Maintenance Manual for the AN/SQQ-34C(V)2 Aircraft Carrier Tactical Support Center System provides entry points for troubleshooting system faults.

        (1) The table provides a list of problems, indications, and possible causes.

        (2) The possible causes are listed in order to be investigated and are linked to the appropriate fault isolation procedure.

        (3) The table is not inclusive of all faults an operator might experience.

    NOTE: The instructor will verify the fault interpretation from trainee and assign a curse of action.

5.

6. Knowledge Check assessing safety precautions

7. Knowledge Check assessing fault isolation

8. Knowledge Check assessing O/S maintenance procedures

9. Section Summary

    a. The purpose of this section was to practice maintenance procedures for the AN/SQQ-34C(V)2 O/S. Trainees should now be able to perform corrective and schedule maintenance for the O/S in accordance with applicable documentation and procedures.

10. Performance Support (PS): Performance Support (PS): GDIT to develop a game style simulation ICW to practice maintenance.