

**SKILLS FRAMEWORK FOR PUBLIC TRANSPORT  
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT**

<b>TSC Category</b>	Rail Systems Maintenance					
<b>TSC</b>	Network Systems Maintenance					
<b>TSC Description</b>	Implement preventive and corrective maintenance activities of network systems					
<b>TSC Proficiency Description</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>	<b>Level 6</b>
	<b>PTP-RSM-1020-1.1</b>	<b>PTP-RSM-2020-1.1</b>	<b>PTP-RSM-3020-1.1</b>	<b>PTP-RSM-4020-1.1</b>		
	Carry out scheduled preventive maintenance on network systems	Conduct corrective maintenance on network systems	Troubleshoot faulty network systems to locate faults and recommend rectification methods	Diagnose root causes of network systems failure and review maintenance plans to prevent fault recurrence		
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>Operating principles and functions of network systems</li> <li>Types of components in network systems</li> <li>Types of network systems equipment that includes:                             <ul style="list-style-type: none"> <li>Servers</li> <li>Workstations</li> <li>Switches and routers</li> <li>Modems</li> <li>Local Area Network (LAN) and Wide Area Network (WAN) systems</li> </ul> </li> <li>Procedures for servicing network systems equipment in accordance organisational maintenance procedures, Work Instructions (WI) an/or Original Equipment Manufacturer (OEM) technical manuals</li> <li>Types of software and hardware tools for carrying out preventive maintenance on network systems</li> <li>Safety guidelines on use of tools and equipment for preventive</li> </ul>	<ul style="list-style-type: none"> <li>Operating principles and functions of network systems</li> <li>Types of components in network systems</li> <li>Network systems flowchart and schematic diagrams</li> <li>Types of network systems equipment that includes:                             <ul style="list-style-type: none"> <li>Servers</li> <li>Workstations</li> <li>Switches and routers</li> <li>Modems</li> <li>Local Area Network (LAN) and Wide Area Network (WAN) system</li> </ul> </li> <li>Methods of power isolation</li> <li>Common failures of network systems equipment and its components</li> <li>Procedures to rectify software bugs and fix hardware faults of network systems</li> <li>Types of software and hardware tools for carrying out corrective maintenance on network systems</li> </ul>	<ul style="list-style-type: none"> <li>Fundamentals of network topology, administration and security</li> <li>Common fault symptoms in network systems</li> <li>Methods of locating and rectifying faults</li> <li>Types of troubleshooting techniques, equipment and tools</li> <li>Methods of power isolation</li> <li>Safety guidelines for usage of tools and equipment to execute troubleshooting on network systems</li> </ul>	<ul style="list-style-type: none"> <li>Network configuration and management</li> <li>Fundamentals of cyber security</li> <li>Fundamentals of software debugging</li> <li>Factors affecting equipment and system performance</li> <li>Failure investigation and prevention methods</li> <li>Methods and tools for diagnostic analysis</li> <li>Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations</li> <li>Types and methods of functional tests on network systems equipment</li> <li>Functional relationships between network systems and the overall rail systems</li> </ul>		

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	<p>maintenance on network systems</p> <ul style="list-style-type: none"> <li>Types and usage of Personal Protective Equipment (PPE) on network systems maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Safety guidelines on use of tools and equipment for corrective maintenance on network systems</li> <li>Types and usage of Personal Protective Equipment (PPE) on network systems maintenance</li> </ul>				
<b>Abilities</b>	<ul style="list-style-type: none"> <li>Perform preparation work to conduct preventive maintenance on network systems</li> <li>Follow organisational maintenance procedures, WI and/or OEM technical manuals to carry out preventive maintenance on network systems</li> <li>Perform systems functional checks</li> <li>Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work</li> <li>Record network systems maintenance activities</li> </ul>	<ul style="list-style-type: none"> <li>Interpret work orders and prepare for corrective maintenance</li> <li>Apply power isolation procedures during network systems maintenance</li> <li>Apply debugging and rectification procedures to software bugs and hardware faults of network systems</li> <li>Dismantle network hardware and/or equipment for corrective maintenance</li> <li>Carry out rectification, repair and/or replacement of faulty hardware and/or equipment components</li> <li>Reassemble and reinstate network systems</li> <li>Perform functional tests on network systems</li> <li>Apply operating and safety measures in operating tools and equipment during maintenance work</li> <li>Record and collate documentation of network systems maintenance work</li> </ul>	<ul style="list-style-type: none"> <li>Use troubleshooting tools and equipment to locate and analyse causes of faults on network systems</li> <li>Recommend corrective actions for identified faults on network systems</li> <li>Implement procedures on safe device usage during maintenance work</li> <li>Analyse maintenance work documented for network systems to identify possible workflow improvements so as to prevent fault recurrence</li> </ul>	<ul style="list-style-type: none"> <li>Establish structured failure investigation and specify functional testing requirements</li> <li>Apply failure investigation methods to diagnose root cause failure of network systems</li> <li>Develop debugging and rectification methods and techniques</li> <li>Review organisation network system maintenance procedures</li> <li>Propose new and/or enhanced maintenance procedures and/or, WI in reference to OEM technical recommendations</li> <li>Monitor overall maintenance progress of network systems to determine system performance reliability and effectiveness</li> <li>Develop long-term solutions by analysing diagnostic data to prevent faults and failures recurrence</li> <li>Develop test procedures for system performance checks</li> <li>Coordinate network system maintenance with other rail systems maintenance needs</li> </ul>		