TRACTION INSTALLATION DIRECTORATE

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

Instruction No.-TI/IN/0020 (12/2009)

Instructions for timely replacement & up-gradation of Computers at Remote Control Centres of traction SCADA systems on IR

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ISSUED BY

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1.0 **Scope:** This instruction stipulates the action to be taken by Zonal Railways to up-grade the work station at Remote Control Centres by timely replacement of computers.

2.0 **Background:** In some of the SCADA systems having old RCC computers, Railways has been reporting problems like MMI refreshing taking time, MMI hanging on changing the windows quickly or appearance of double windows, Hard disk memory limitations and non compatibility with the latest versions of software applications and updates of the SCADA software etc.

3.0 In addition to above, problems on account of delays in repairing of the old computers due to non availability of requisite parts, non functioning of printers and other peripheral devices due to in-compatible/ obsolete drivers, and severe constraints are being observed in the overall SCADA system performance.

4.0 **Up gradation and timely replacement of RCC computers**

To ensure reliable & required optimum performance of SCADA system following instructions/ criteria should be followed for timely up-gradation and / or replacement of RCC computers.

4.1 The SCADA software at RCC is a graphical User Interface (GUI) based application and its efficient working requires large RAM sizes on PC's workstations.

4.2 The life of the PC's and computer has been stipulated by the Railway Board's letter No. 2002/ACII/1/10(Vol-II) dated 24-5-2006 (RBA No. 25/2006) and revised on 25-02-2009 vide RBA No. 13/2009. The same should be adhered to for timely planning the replacement & up-gradation.

4.3 The specification of the computer hardware and software are changing very fast due to rapid technological developments taking place in this field e.g. after every 2-3 years, the new Microsoft windows OS are released, similarly the memory size required for using the different application software is also increasing rapidly and hence the peripheral & interfacing devices like DVD drives, HDD, printers and other communication devices are also required to be updated very fast.

4.4 SCADA vendors keep on updating their software in line with the new operating systems, application development tools, interfacing software and higher & more efficient product design requirements. The new versions of the SCADA software may require higher level of hardware configurations for proper running of the application and configuration with latest data cards thereby necessitating up gradation or replacement of the computers.

4.5 In this regard Railways are advised to review the specifications of the existing computers of SCADA systems and plan either replacement or up gradation of the systems. The basic configuration of the RCC computers is given in the RDSO specification for complete SCADA systems which is the minimum requirement for satisfactory functioning however as the computer models and capabilities are changing rapidly it is advised to opt for the best possible and available configurations to avoid obsolescence. The Railways may refer to the Web sites of the approved makes of the computers i.e. IBM, DELL, HP etc. as mentioned in the SCADA specification.

4.6 The motherboard and the RAM should be examined prior to deciding for the up gradation of the computers.

4.7 All components and peripherals inside the computer are connected to Motherboard either directly or indirectly. Their specification indicate the type of processor that can be used, the maximum amount of RAM that can be fitted & the requirement of number of USB ports, hard drive sockets, sound features and so on. Each motherboard has a socket which dictates what type of CPU's can be fitted therefore if Mother board is not having the additional slots for RAM or graphic cards the up gradation of the computer shall not be possible.

4.8 Upgrading the RAM of the system may be one of the easiest and cheapest hardware modifications that can be done to speed up the computer. Computers motherboard determines the type of RAM that can be used. Now a days for desktop PCs DDR2 RAM with DIMM (dual in-line memory module) sockets is used. DDR, DDR2, and DDR3 are different types of SDRAMs requiring different pin counts of DIMM sockets. In new computers RAM sizes of higher than 4 GB are common.

4.9 It may be noted that minimum 512 Mb RAM is essential to efficiently run most of the SCADA application software. If mother board does not support even this size of RAM then it is advisable to replace the computer. If higher memory RAM is available in the market and existing Motherboard supports the same, it can be preferred and provided.

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