I.1: Design and development of USB device blocking software

A Universal Serial Bus (USB) Device Blocking Software (UDBS) has been designed, developed and released to users for regulating use of USB devices (pen drives) on Personal Computers (PCs) connected to RRCATNet and also to prevent data theft / unauthorized access. UDBS can be installed on PCs with Windows 7/ Windows 8 or Windows 10 Operating Systems. All official pen drives ("datashur") have been pre-registered in the software and hence can be accessed from any PC on which the software is installed without any user end registration. Users can register other officially acquired USB pen drives/USB printers and other USB devices using the UDBS. These pen drives / devices will be accessible only on the user PC on which it is registered. These devices (pen drives/ printers) will NOT be accessible on other PCs in RRCAT, where the USB device blocking software is installed.

USB devices like mouse, keyboard will not require UDBS registration. Pen drives, external Hard Disk Drives (HDD), webcams, external Digital Versatile Disk (DVD) drives, printers with USB interfaces, will require UDBS registration for unhindered usage on RRCATNet connected PCs.

Users can download UDBS installer from RRCATInfonet. Universal Resource Locator (URL) for downloading the installer is http://cati.cat.ernet.in/catintra/nhtml/rrcatudbs.exe.

Workflow explaining various operations of the UDBS is shown in Figure I.1.1. A user needs to login as administrator in his/her PC and install the software. Once the software is installed then following actions are performed/allowed to be performed on the user end PC:

- "Register" and "DeRegister" icons are created on the desktop of the user PC as shown in Figure I.1.2.
- PC administrator can use the "Register" icon for registration of USB devices. Only successfully registered USB devices are allowed to be accessed on the PC.
- PC administrator can use "DeRegister" icon for de-registration of USB devices.
- After registration and deregistration of USB devices, client database is updated and synced with UDBS server database over RRCATNet.
- UDBS server database contains list of all official ("Datashur") USB pen drives which are pre-registered. These USB drives will be accessible on all PCs on which UDBS is installed without requiring registration.

Installations of UDBS on client end PCs, can be monitored from the UDBS monitoring console, for ensuring compliance to guidelines for all PCs connected to RRCATNet as shown in Figure I.1.3.
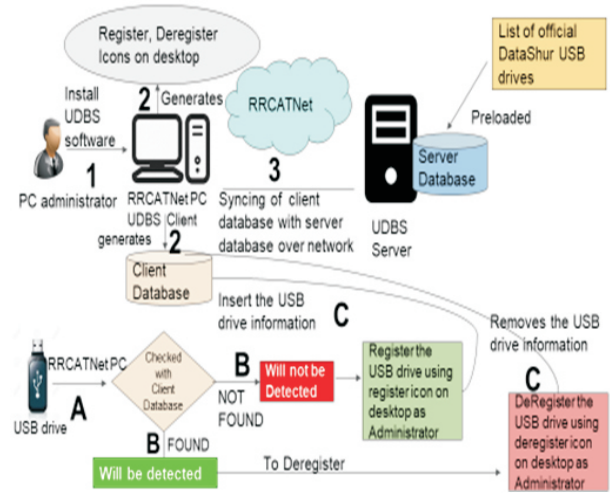

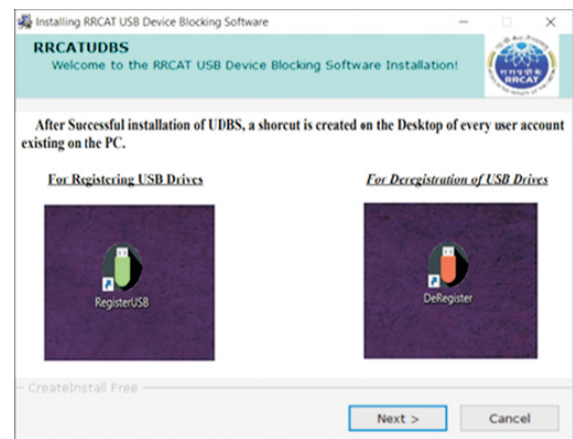Fig. I.1.1: Workflow of various operations in UDBS.

Fig. I.1.2: UDBS client installation and USB registration / deregistration shortcuts on PC.

FULLNAME	FIRST CONNECTION TIME	LAST CONNECTION TIME	STATUS
Y. Pawan Kumar	08-10-2018 15:14:42	17-10-2018 16:14:11	Active
P.B. Thapa	01-10-2018 10:42:31	17-10-2018 16:42:45	Active
Saleem Khan	04-10-2018 10:19:23	17-10-2018 15:19:22	InActive
Dr. Mukesh Kumar P. Joshi	28-09-2018 18:37:39	17-10-2018 16:37:22	Active
V.P. Bhanage	03-10-2018 17:03:09	17-10-2018 16:02:47	Active
J. Nageswara Rao	03-10-2018 10:09:53	11-10-2018 17:10:00	InActive
K.P. Sharma	05-10-2018 10:51:27	05-10-2018 12:51:26	InActive
Pankaj Kumar Sharma	04-10-2018 13:09:16	15-10-2018 11:09:00	InActive

Fig. I.1.3: Centralized UDBS monitoring console snapshot.

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