

**Policy on  
Device Drivers for  
Procurement of Hardware for e-Governance**

(Draft for Public Review)



**Government of India  
Department of Information Technology  
Ministry of Communications and Information Technology  
New Delhi – 110 003**

# Amendment Log

Old Version No. & Date	Briefing about change request and action taken	New version No.	The sections, which have been revised / new section added
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# Part-I

## Policy on Device Drivers for Procurement of Hardware for e-Governance

**Effective Date:** This Policy is effective from the date of notification

### Preamble

Government of India (GOI) endeavours to provide e-Governance services, which are technology-neutral, cost effective, interoperable and vendor-neutral. GoI Policy on open standards is a step towards meeting this objective in the development of e-Governance applications.

However, while implementing such systems, there is a possibility of non-availability of Device Drivers for all General Purpose Operating Systems (OS). Hence, there is a need for a Policy by GoI for procurement of Computers and associated Peripherals to empower the implementation of e-Governance projects with neutrality to all General Purpose OS.

### I-1. Objective

The Policy provides the guidelines for the procurement of Hardware (*Computers and Peripherals*) for e-Governance applications which can work on any General Purpose OS and provide a platform-neutral framework for their procurement. This will also ensure smooth migration and porting of applications across General Purpose OS.

### I-2. Definitions and Acronyms for the purpose of the Policy

Refer to Part-III

#### FAQs

Refer to Part – V

### I-3. Applicability

- I-3.1. The Policy shall be applicable in the procurement of computers and associated peripherals for all **new e-Governance projects** of GoI from the date it comes into effect.

- I-3.2. The Policy shall be applicable to **existing e-Governance projects** also, when the existing Computers and associated Peripherals are upgraded / augmented by procuring new Computers and Peripherals.

#### **I-4. Policy Statement**

The following shall be guaranteed by the OEM and ensured by Vendors.

- I-4.1. The *Computers* shall be capable of running on all General Purpose Operating Systems(OS)
- I-4.2. OEMs shall provide *Drivers* for Computers and *Peripherals*, which are capable of running on all General Purpose OS.
- I-4.3. The *Drivers of Computers and Peripherals* for GNU/Linux ( *one of the General Purpose OS*) shall satisfy **any of the following conditions**;
- I-4.3.1. The source code, build procedure and installation instructions for the *Drivers* must be made available as per any of the Open Source Software (OSS) Licenses listed in Part-IV. Computers and Peripherals must be operational using these *Drivers* in the latest stable Linux-Kernel.
- I-4.3.2. The source code, build procedure and installation instructions for the *Drivers* must comply with LSB-3.0 or higher versions and accepted by any of the *Linux-Distributions*.
- I-4.3.3. In case only binaries are made available for the *Drivers*, then they shall be *Linux-Compatible*; in addition, kernel dependent binaries must adhere to the specifications of the latest stable *Linux-Kernel*.

#### **I-5. Non-availability of *Drivers* as per the Policy**

I-5.1 In case, the *Drivers of Computers and Peripherals* are not available as per this Policy, and then the OEM / Vendor would be required to submit justifications to the procuring agency for considering the temporary relaxation.

I-5.2 Temporary relaxation may be granted by the procuring organization, subject to assurance from the Vendor to comply with the Policy prior to the delivery and installation of the *Computers and Peripherals*.

#### **I-6. Review of the Policy**

The Government has the right to revise the Policy as and when required.

**I-7. Point of Contact**

All queries or comments related to this Policy shall be directed to GC-R&D, DIT ([dutta@mit.gov.in](mailto:dutta@mit.gov.in)), JS (e-Governance), DIT ([jsegov@mit.gov.in](mailto:jsegov@mit.gov.in)) and DG (NIC) ([dg@nic.in](mailto:dg@nic.in))

**I-8. Implementation Manual**

Manual on the Implementation of “Policy on Device *Drivers* for the Procurement of *Hardware* for e-Governance” can be referred in Part-II for implementation of this Policy through guidelines and FAQ.

## Part-II

# Manual for Policy on Device Drivers for Procurement of Hardware for e-Governance

### II-1. Purpose

II-1.1 This manual on the “Implementation of Policy on Device Drivers for the Procurement of hardware ( Computers and Associated Peripherals) for e-Governance ” (hereinafter referred to as “Manual”) is intended to provide mechanism for implementation of “ Policy on Device Drivers for the Procurement of hardware for e-Governance ” (hereinafter referred to as “Policy” ).

II-1.2 this manual provides broad level procedure for the implementation of the Policy to ensure that procured items work on any General Purpose OS.

II-1.3 this manual should be read along with the Policy as given in Part-I.

### II-2. Definitions

Refer to Part – III

### II-3. FAQs

Refer to Part – V

### II-4. Policy Implementation Mechanism & Guidelines

II-4.1. The RFPs for procurement of hardware should have a clause indicating need for compliance to this Policy.

II-4.2. A self-declaration will have to be obtained from the Vendor about the compliance with the Policy indicating the clause of Policy, to which it adheres at the time of tendering. .

II-4.3. The vendor(s) would be accountable for their claims regarding compliance to the Policy.

II-4.4. The working of Computers and Peripherals on all General Purpose OS will be demonstrated by the Vendors at the time of technical evaluation of the bids (if possible), as well as at the time of testing and delivery of the items.

II-4.5. When the conditions mentioned in the Policy are not met, the temporary relaxation given in the clause “Non-availability of Drivers as per the Policy” may be invoked, in case the justification submitted by the Vendor is acceptable by government’s procuring agency. In such cases, the drivers are to be supplied prior to the delivery and installation of the *Computers and Peripherals* as per the Policy; if the drivers are not supplied by the Vendor, then the case will be considered as violation of the tender-conditions.

II-4.6. In case of any dispute, a committee may be set up by procuring agency with domain-experts drawn from other public agencies or the dispute may be

referred to DIT for advice and resolution. The committee / DIT will take decisions in the matter on case to case basis, by following the Policy.

**II-5. Review of the Manual**

The Government has the right to review the Manual as and when required.

**II-6. Point of Contact**

All queries or comments related to this Manual should be directed to GC-R&D, DIT ([dutta@mit.gov.in](mailto:dutta@mit.gov.in)), JS (e-Governance), DIT ([jsegov@mit.gov.in](mailto:jsegov@mit.gov.in)) and DG (NIC) ([dg@nic.in](mailto:dg@nic.in)).

## Part-III

### Definitions and Acronyms for the purpose of the Policy

#### III-1) Definitions

- III-1.1. **Bharat Operating System Solutions (BOSS)** is a GNU/Linux operating system distribution with Indian languages support, derived from Debian, developed by C-DAC (Centre for Development of Advanced Computing) with support from Department of Information Technology, Ministry of Communications & IT, Government of India for enhancing the use of Free/ Open Source Software throughout India. BOSS GNU/Linux is available as desktop and server versions and is freely downloadable from <http://www.bosslinux.in>.
- III-1.2. **Computers** include Desktops, Workstations, Laptops, Notebooks, High-End Servers, Rack-Servers, Blade-Servers, Virtualized-Servers and General Purpose Servers for running General Purpose OS (Windows and Linux) for all e-Governance projects.
- III-1.3. **Debian** means a general purpose GNU/Linux operating system built on top of the Linux-Kernel, developed by the community-supported Debian Project ([www.debian.org](http://www.debian.org)). The current stable release includes over twenty five thousand software packages for twelve computer architectures. It focuses on stability and security and is used as a base for many other distributions (like Ubuntu, BOSS, MEPIS, Dreamlinux, Damn Small Linux, Xandros, Knoppix, BackTrack, Linspire, and Linux Mint).
- III-1.4. **Device-Driver (or Driver)** is a set of commands / program that enables a computer and a peripheral device to communicate with each other; the **Drivers** must support all features, complete functionalities of the peripheral device.
- III-1.5. **E-Governance** means a procedural approach in which the Government, Citizens, Businesses, and other arms of government are able to transact all their activities or at least majority of their activities using Information and Communication Technology tools.
- III-1.6. **Fedora** means, an RPM-based, general purpose GNU/Linux operating system built on top of the Linux-Kernel, developed by the community-supported Fedora Project (<http://www.fedoraproject.org/>) and sponsored by Red Hat.
- III-1.7. **General Purpose Operating System** are Operating System commonly-used in Computers and Peripherals deployed in the roll out of e-Governance projects; Windows Operating System (from Microsoft) and GNU/Linux Operating System (from GNU Project) which are widely-used in Computers and Peripherals, are considered here as two General Purpose Operating Systems; the three community based popular Linux-Distributions, namely Fedora, OpenSUSE, Debian / its derivatives like BOSS, are considered as a part of GNU/Linux. Whereas special version of Operating Systems, used for limited usage (like usage in Govt. Labs and Research Centres) in special purpose workstations &

mini-computers (for special-purpose GIS, special-purpose CAD, etc), are not covered.

- III-1.8. **Hardware** includes Computers and Peripherals for the purpose of this policy.
- III-1.9. **Linux (Linux - Kernel)** is nucleus of GNU Operating system ( popularly known as “Linux Operating System” or “GNU/Linux Operating System”) originally created by Linus Torvalds with the assistance of developers around the world. Developed under the GNU General Public License, the source code for Linux is freely available to everyone.
- III-1.10. **Linux-Compatible** means Computers and Peripherals must be demonstrated for all features and complete functionalities with **all the three** community based popular Linux-Distributions, namely Fedora, OpenSUSE, Debian / its derivatives like BOSS
- III-1.11. **Linux-Distribution** means any one of the three community based popular Linux operating systems distributions (technically known as GNU operating system with Linux kernel) - namely Fedora, OpenSUSE, Debian / its derivatives like BOSS. (Hence if the device-driver works with any one of these three community versions, then it is expected to work with other popular commercial versions of the respective Linux-Distribution also.)
- III-1.12. **Linux Operating System** means an operating system from GNU Project with Linux kernel also known as GNU Operating system or GNU/Linux Operating System.
- III-1.13. **Linux Standard Base** (LSB) is a set of open standards specified in order to enhance compatibility among various Linux-Distributions and to enable software applications to run on any compliant system even in binary form. LSB is a joint project (<http://www.linuxfoundation.org/collaborate/workgroups/lsb>) by several Linux-Distributions under the Linux Foundation organization (<http://www.linuxfoundation.org/>). Higher the LSB version, more the compatibility.
- III-1.14. **Open Source Software License** means, a copyright license for computer software that makes the source code available for everyone to use free of cost. The availability of source code allows modification, redistribution, and commercial use without having to pay the original author; the licenses usually have restrictions such as a requirement to preserve the name of the authors and a copyright statement within the code.
- III-1.15. **OpenSUSE** means a general purpose GNU/Linux operating system built on top of the Linux-Kernel, developed by the community-supported OpenSUSE Project (<http://www.opensuse.org>) and sponsored by Novell.
- III-1.16. **Operating system** means a software program that is essentially required to enable the computer hardware to communicate and operate with the application software.
- III-1.17. **Original Equipment Manufacturer** (OEM) manufactures *Computers /Peripherals*.

(Items manufactured by Original Equipment Manufacturer can be purchased by a retailer, computer system builder or integrator. Such items can even be sold under Purchaser Company’s brand name. In such case also, the guarantee

about adherence to policy has to be obtained from Original Equipment Manufacturer by the Vendor).

- III-1.18. **Peripherals** mean input, output and storage devices / equipments and any other internal or external devices that might be connected to **Computer** to enhance its functionality.
- III-1.19. **Vendor** means company who intends to have / has contract with the procuring agency and directly supplies Computers and Peripherals items which may be sourced from the OEM. The vendor does installation and commissioning also of these items. The vendor is the point of contact for the warranty provided for a product.

## III-2) Acronyms

- |       |             |  |
|-------|-------------|--|
| 2.1)  | <b>BOSS</b> | Bharat Operating System Solutions                    |
| 2.2)  | <b>DIT</b>  | Department of Information Technology                 |
| 2.3)  | <b>FAQ</b>  | Frequently asked questions                           |
| 2.4)  | <b>GoI</b>  | Government of India                                  |
| 2.5)  | <b>GNU</b>  | a recursive acronym that stands for "GNU's Not Unix" |
| 2.6)  | <b>LSB</b>  | Linux Standards Base                                 |
| 2.7)  | <b>OEM</b>  | Original Equipment Manufacturer                      |
| 2.8)  | <b>OS</b>   | Operating Systems                                    |
| 2.9)  | <b>OSS</b>  | Open Source Software                                 |
| 2.10) | <b>SAN</b>  | Storage Area Network                                 |

## PART IV

### Open Source Software Licenses

- IV-1. Any other license which gives freedom to copy, modify and redistribute driver source code without any restrictions.
- IV-2. Apache License, Version 2.0
- IV-3. Eclipse Public License- v 1.0
- IV-4. European Union Public License (EUPL v.1.1)
- IV-5. GNU General Public License, version 2 (GPLv2)
- IV-6. GNU General Public License, version 3 (GPLv3)
- IV-7. Mozilla Public License 1.1 (MPL 1.1)
- IV-8. The BSD License
- IV-9. The GNU Lesser General Public License, version 2.1 (LGPLv2.1)
- IV-10. The GNU Lesser General Public License, version 3.0 (LGPLv3)
- IV-11. The MIT License

## Part-V

### Frequently Asked Questions (FAQs)

**V-1. What are the reasons for including servers in addition to the desktops and laptops?**

Most of the servers like Rack-Servers and Blade-Servers are connected with storage devices like SAN through connecting devices like Fibre Channel which need appropriate drivers to work properly; these drivers are often not available for Linux Operating Systems. Hence, it is necessary to include the drivers for the Peripherals associated with the Servers.

**V-2. Whether the Special-purpose Computers and Peripherals procured at Government offices are covered by the Policy?**

The procurement of Computers and Peripherals at Government offices for the general purpose of roll out of e-Governance projects for information services delivery are covered in the Policy. The special purpose workstations & mini-computers (for special-purpose GIS, special-purpose CAD, etc) and special accessory-devices and peripherals may have specific features (like special version of Operating systems, hardware level graphics accelerations, etc) for limited usage (like usage in Government Labs and Research Centres); and these are not widely deployed for e-Governance applications. Hence, the policy is not applicable for procurement of Special-purpose Computers & Peripherals.

**V-3. In the policy statement, why adherence to any one of the three conditions is sufficient when considering Linux Operating System?**

The source code of the device driver for the Linux Operating System is made available through two approaches, (a) under open source licenses (b) LSB compliance, as indicated in the policy. From any of the two approaches, binary for the device driver can be built. Third approach is to use the binary of the device driver provided by the vendor as per the policy requirements. Hence adherence to any one condition is sufficient.

**V-4. Why many Open Source Software licenses are mentioned when considering Linux Operating System?**

The widely used OSS Licenses are listed along with generic Open Source Software License which gives freedom to copy, modify and redistribute driver source code without any restrictions. Hence the Driver is made available by building the executable from the available source-code under any one of the listed Licenses.

**V-5. Why both Computers and Peripherals are covered in the Policy?**

Most parts of the Computer, in general, work with the recent stable versions of Windows and *Linux* Operating Systems. However, some of the devices internal to Computers may require drivers, which should adhere. The policy has to be applicable to them also, for example, webcam, inbuilt speakers. Other devices

(like printer, scanner) are external to Computers. Hence both Computers and Peripherals are covered in the policy, in addition to the drivers of external Peripherals to ensure the complete-working of the computer system.

**V-6. Why are widely used Linux-distributions, like RedHat, not listed in the Policy?**

RedHat Linux is a commercially-supported version of Fedora (a community edition), the driver would work for RedHat, if it works for Fedora, as RedHat OS is compatible with Fedora. All commercial versions of popular Linux-Distributions are mostly derived from the community editions of Fedora, Open-SUSE or Debian; hence if the device-driver works with any of this community version, then it is expected to work with other popular commercial versions of the respective Linux-Distribution.

**V-7. What user should do in case the conditions mentioned in the Policy Statement are not met?**

In case the conditions mentioned in the Policy are not met, the clause “Non-availability of Drivers as per the Policy” can be invoked. Here, the Vendor and OEM are given time-period, as part of temporary relaxation, to comply with the policy on or before the delivery and installation of the Computers and Peripherals.

**V-8. Is the mechanism for examining/resolving the issue arising out of not meeting any conditions of the Policy Statement has been worked out or in place?**

The dispute resolution mechanism is described in the clause “Policy Implementation Mechanism”. For example, in case of dispute in the procurement for Gol, a DIT committee may be requested by the concerned Ministry / Department to get advice & resolution. The committee led by E-Gov division of DIT may be set up with members from CDAC-NRC-FOSS, NIC-OTC, and DIT-FOSS-Cell to take decisions in the matter on case to case basis. If similar dispute arises at any State, then similar committee may be formed by the respective State government to advice & resolve; otherwise, the dispute may be referred to DIT for resolution.

**V-9. Will the examination by Gol or any other agency in respect of not meeting the requirements of the Policy Statement will not delay the process for procurement?**

There will be definitely delay in the procurement process, but that will be less serious compared to the problem associated with implementation of e-Governance systems with procured hardware, which does not comply with the policy. It is expected that bidders should be aware of the policy in advance and should take necessary steps to make sure the availability of appropriate device conforming to the policy.

**V-10. What is the suggestion when the Vendor demonstrates compliance to the policy on a subset of device functionality, which meets the tender specifications, whereas the driver can exhibit additional functionalities on a particular OS only?**

There is a possibility that a hardware item may have additional features, beyond the desired features specifications in the tender. In such a case the policy is applicable to the additional features also. For example, the driver will have restriction on number of connections (such as modem drivers); sometimes, the vendor may show partial functionality and may claim that the non compliant features or functionalities are actually not required as per tender specification.

Such situations also fall in the category of non-compliance to the policy, and dispute resolution mechanism indicated in the manual should be followed for resolving issues, if any.

**V-11 Can the vendor demand additional cost for adherence of device drivers for all types of general purpose operating systems.**

The cost for adherence should be included in the total cost at the time of tendering process itself. No additional cost would be admissible at the later stage

In case, new device driver is to be procured for the existing Computers and Peripherals through a third party, and not the vendor, who will be accountable for adherence to the policy.

The third party, who is supplying the device drivers, would be accountable for adherence to the policy

**V-12 What is the suggestion when the driver is an additional item, and supplied by a third party, and not by the vendor.**

The cost of the driver should be included as part of the Computers and Peripherals while competing during tendering. The Vendors are responsible for the delivery of the necessary drivers with full functionalities; but there is no additional cost charged to the procuring agency while delivering the driver. In case, the driver is sold by a third party, the Vendor should bear the cost, by including the cost of drivers with the total cost of the Computers / Peripherals, while competing for tender. The procuring agency should not be charged separately for the drivers at a later time.

**V-13 What is the meaning of “Computers and Peripherals must be operational using these Drivers in the latest stable Linux-Kernel”.**

In case, the source code, build procedure and installation instructions for the Drivers are made available as per any of the Open Source Software Licenses listed in Part-IV, and if these are accepted in the latest stable *Linux-Kernel*, then it is expected to work in any of the *Linux-Distributions*.

**V-14      Should we have LSB version 4.0 as it is in place since 2008 end?**

The current stable version of Debian distribution (Version 6.0 Squeeze) is compliant with LSB Version 3.2, and not    LSB Version 4.0 Hence, compliance with LSB-3.0 or higher versions is opted in the current version of the Policy.