Technology Standards at a Glance

TECHNOLOGY STANDARDS AT A GLANCE

This section lists standards set by the Technology Review Board (TRB) for the District and its governing agencies. The standards span all areas of the automated environment, ranging from software to hardware.

Earlier editions of this guide provided lists of approved products. This edition also includes details on the use of each technology standard, the status of any legacy products, and implementation strategy. The summary matrix of the standards provides information at a glance. The software and hardware standards sections detail how to use the product standard and how legacy standards should be treated.

SOFTWARE STANDARDS

Application Type	Vendor	Product	Summary
Desktop			
Desktop Virus Protection	McAfee	VirusScan V4.5	All District of Columbia workstations will use McAfee Virus Scan software to protect the District Wide Area Network (DCWAN) from malicious code. New computers should have the VirusScan software installed and configured prior to being deployed. More info: http://www.mcafee.com
Office Automation	Microsoft	Office XP Standard Office XP Professional	All new purchases will be Office XP Standard. If a user requires Microsoft Access, the agency can purchase Office XP Professional. This standard applies to office automation only. OCTO has not approved Office as an application development platform. The District supports the use of Excel and Word macros. However, it has not sanctioned complete applications using Access. OCTO is evaluating the best solution for low-end application development. The use of Access as that platform is not recommended until the evaluation has been completed. More info: http://www.microsoft.com

Application Type	Vendor	Product	Summary
Desktop			
Desktop Operating System (OS)	Microsoft	Windows 2000 Windows XP	Windows XP Professional is the preferred operating system for all new PC purchases. However, there may be situations in which the user's environment will not allow for a migration to Windows XP. If hardware or software issues prevent the installation of Windows XP Professional, users can continue to order Windows 2000. The District has standardized on Intel-based personal computers. Apple computers can only be purchased upon approval by OCTO. More info: http://www.microsoft.com
Email/Calendar Client	Microsoft	Outlook XP Outlook 2000 Outlook 98 Outlook Web Access	The District supports Outlook XP, Outlook 2000, and Outlook 98 email clients for users of Exchange 5.5 backend services (the current version of Exchange). The District also supports Outlook Web Access with Exchange 5.5 for users that occasionally access email while out of the office. DC will implement Exchange 2000 in 2003. When Exchange 2000 is deployed the preferred email client will be Outlook Web Access. Outlook XP and Outlook 2000 will be supported for notebook users that must have offline access to email. More info: http://www.microsoft.com

Application Type	Vendor	Product	Summary
Desktop			
Email Privacy	PGP Corporation	PGP V7	The District does not provide encryption as a standard service for email. When email is sent across the Internet, it can be intercepted and read. Further, the "from" field in an email message is easily manipulated and does not provide a true validation of who sent an email. Certain users require enhanced security and privacy for their email. PGP Mail is the recommended product for them. The product supports encryption and electronic signatures through the use of private/public key technology. However, PGP Mail is not recommended for all users. In addition, at this time OCTO does not provide key storage. Refer to PGP Mail documentation on key management options. More info: http://www.pgp.com
File Encryption	PGP Corporation	PGP V7	General file encryption is not sanctioned by OCTO. However, users with sensitive information on their PCs may purchase PGP for file encryption. PGP should only be used for individual file encryption. OCTO also does not sanction the encryption of an entire hard drive or partition. Encryption could prevent a PC technician from accessing the hard drive to diagnose a problem. However, encryption is allowed in very rare cases, in particular where very sensitive data is residing on a notebook. In these situations PGP Disk V7 is the recommended product. Windows XP allows a user to encrypt files under certain conditions. The feature is fairly lightweight and therefore PGP is recommended. More info: http://www.pgp.com

Application Type	Vendor	Product	Summary
Desktop			
Personal Fax	Microsoft Symantec	Microsoft Fax WinFax PRO V10	Microsoft Fax is integrated with all current Windows operating systems. It is recommended for the majority of simple inbound and outbound fax transmissions. For more robust fax requirements, the District recommends Winfax Pro V10.0. Winfax Pro should be purchased for users that require more control over their faxes, including the ability to create a single fax from multiple sources. More info: http://www.symantec.com
Web Browser	Microsoft	Internet Explorer 6.0 w/128-bit encryption	Internet Explorer 6.0 is the browser standard for all new Windows PCs. Note that other devices, such as PDAs, may have embedded browsers. This standard does not address these devices nor does it address non-Windows platforms. Note that other features embedded within Internet Explorer, such as the email client, are not supported. The intent of this recommendation is to establish a standard for web browsing. More info: http://www.microsoft.com
Media Player – Desktop	Microsoft	Media Player V8.0	Microsoft Windows Media Player is a full-function media player that comes bundled with new PC operating systems. The District has standardized on Media Player for its web infrastructure. More info: http://www.microsoft.com
PDA (Personal Digital Assistants)	Palm Handsprings Compaq Sony RIM	Palm Visor iPAQ Clié BlackBerry 950 & 957	Personal Digital Assistants provide calendaring, to-do lists, contacts, and other personal management functions in a handheld device. The District has sanctioned both the Palm (from Palm, Handspring and Sony) and Windows CE devices (from Compaq) as standards. HotSync Manager (Palm) and ActiveSync (Windows CE) are the sanctioned software that will synchronize the devices with the user's PC. RIM devices are also supported as both a PDA and a wireless email device.

Application Type	Vendor	Product	Summary
Desktop			
Forms Generation	Lake Companies ICM America Cardiff	JetForm OmniForm Liquid Office	OCTO supports a handful of form management applications. Liquid Office uses a number of industry standard formats for documents and related processes. JetForm allows users to print electronic forms, checks and shipping documents. Omniform replaces standard paper forms with compliant electronic forms that can be stored, filled in, and distributed from desktops, laptops, or networks. All are COTS products that allow for management of paper or electronic documents. More info: http://www.lakeco.com/; http://www.icmamerica.com/; http://www.cardiff.com/
Desktop Publishing	Adobe Quark	Adobe Acrobat V5.0 Adobe PageMaker V7.0 QuarkXPress 5.0	Desktop publishing packages should be used to create professional-quality publications. Since there is a range of requirements, a range of products was selected. More info: http://www.adobe.com and http://www.quark.com
Project Management	Microsoft	Project 2002	OCTO recommends Microsoft Project 2002 for the management of small- to mid-size projects. The product provides all the fundamental functions required to track and manage projects. Microsoft Project 2002 is a general project management tool. Users that require vertical or specific project management tools, such as those used in construction, should consider alternative software. More info: http://www.microsoft.com
Server Applications			
Server Operating System – File/Print	Microsoft	Windows 2000 Server Windows 2000 Advanced Server	OCTO recommends Windows 2000 Server and Advanced Server platforms for file and print servers. Most agencies will deploy Windows 2000 Server rather than Advanced Server. Windows 2000 Advanced Server, with its additional scalability and clustering features, will mainly be deployed in the centralized OCTO data centers. At this time OCTO does not recommend Windows 2000 Data Center. For higher performance requirements OCTO recommends the use of either cluster Windows 2000 Advanced Server machines or Unix. More info: http://www.microsoft.com

Application Type	Vendor	Product	Summary
Server Applications			
Server Antivirus	McAffee Sybari Trend Micro	NetShield – Win2000 Antigen - Exchange Solaris – Unix (SUN)	NetShield, Antigen, and Solaris are the recommended virus protection software products for the various server platforms. Antivirus software must be installed on all servers regardless of their use and location. The software must be kept up to date both with current versions and the newest virus signature files.
Enterprise Application Integration (EAI)	SeeBeyond	eGate eInsight	The District has standardized on SeeBeyond for enterprise-level integration. SeeBeyond should be used for high-volume and reliable integration of many disparate systems. The benefits of EAI are only realized when the number and complexity of the interfaces is relatively high. Therefore not all interfaces should be built using SeeBeyond. Contact OCTO for assistance to design the optimal solution for a particular interface need. More info: http://www.seebeyond.com
Internet Content Management	PPT	DSF	DSF is the District's standard framework tool for all Internet, intranet, and extranet websites. The product provides content management and portal capability including the ability to run applications within the framework. DSF uses a WYSIWYG (what you see is what you get) editing capability. It eliminates the need for HTML developers to deliver content to a site. OCTO has developed various templates for use by agencies to provide a standard look-and-feel and navigation. DSF provides a workflow and approval process automating the publishing of the content. More info: http://dsf.pptnet.com/
Directory Services	Microsoft	Windows 2000 Active Directory	Microsoft Active Directory (AD) is the standard for directory services. Initially OCTO will deploy AD for email authentication and as a white pages directory (to include user name, email address, and phone number). In the future the directory will be enhanced with additional attributes and will become the central authentication engine for applications and network services. More info: http://www.microsoft.com

Application Type	Vendor	Product	Summary
Server Applications			
Email Server	Microsoft	Exchange 2000	The District has standardized on Exchange 2000 for email and calendaring. The typical client will be Outlook Web Access or the full Outlook client. POP will also be supported for certain users who require a lightweight and/or Internet ready client. IMAP will be supported on a case-by-case basis. Exchange has not been sanctioned as the collaboration platform, such as instant messaging and conferencing. For general file sharing, standard Windows server file and print services are recommended over Exchange shared folders. More info: http://www.microsoft.com
Web Server	Microsoft	IIS 5.0	Microsoft IIS 5.0 is the sanctioned standard for all web server requirements including Internet, intranet, and extranet applications. The product provides: • Infrastructure to store and deliver HTML pages • Scripting services for dynamic content and simple business logic • Application platform for robust application logic The sanctioned application development platform for web applications is COM+ (either with or without MTS services) on an IIS server. A complete description of the web infrastructure used in the District is included in the software standards section of the guide. The use of Apache must be reviewed and approved on a case-by-case basis. The OCTO web configuration includes development, quality control, and production servers. These servers should be used for all web requirements. More info: http://www.microsoft.com

Application Type	Vendor	Product	Summary
Server Applications			
Internet Content Filtering – Server	Websense	Websense Enterprise	Content filter prevents access to websites that are deemed "inappropriate" in a business environment, such as pornography and racial sites. Websense is the standard product to provide Internet access restrictions. The product will be deployed at the central OCTO entry points to the ISPs. More info: http://www.websense.com/
Server Operating System – Application and Database	IBM Sun Microsoft	AIX 5.1 OS/390 2.10 Solaris 8 Windows 2000 Windows 2000 Advanced	In a multi-tiered environment the business logic (application) runs on a logically separate tier than the database and the user interface. The application server runs the business logic (programs), which are written in many possible languages including Visual Basic and Java. OCTO supports a handful of operating systems for the application tier. Each operating system provides certain advantages and disadvantages and therefore for optimal leverage OCTO has standardized on different operating systems for different tasks. The District standard is intended to help the user determine which operating system to use for a particular initiative. Because of the complexity of this selection, agencies are encouraged to call OCTO for assistance. More info: http://www.ibm.com/us/; http://www.sun.com/; http://www.microsoft.com
Database Applications			
Relational Database Management	IBM Microsoft Oracle	DB2/MVS V7 SQL Server 2000 Oracle 9i	OCTO supports three separate relational database management products based upon the platform and functionality required by the user. DB2/MVS is the highest performing relational database supported by OCTO and is the preferred platform for extremely high volume applications. Oracle is supported on both UNIX and Windows platforms and is preferred for large scale centralized applications. SQL Server is recommended for most agency-level applications. More info: http:www.microsoft.com http://www.oracle.com; http://www.ibm.com

Application Type	Vendor	Product	Summary
Database Applications			
Database Modeling	Computer Associates Microsoft Sybase	Erwin Data Modeler Visio Professional PowerDesigner	Database modeling tools are used by systems analysts and developers to view data, data attributes, and their relationships. Erwin Modeler is the standard database modeling tool for the District and has been since 2000. Besides developing the visuals of the data, Erwin can also be used to generate the physical database, stored procedures, and triggers for SQL Server, DB2, and Oracle. Visio Professional provides basic modeling tools using a couple of different methodologies and formats and is a low cost solution for simple database designs. PowerDesigner provides a robust set of tools and is appropriate for large and/or complex projects. More info: http://www.cai.com/; http://www.microsoft.com; http://www.sybase.com/home
Utility and Management Applications			
Web HTML Development	Macromedia Microsoft	HomeSite FrontPage	For the creation of static web content, Microsoft FrontPage 2002 and Macromedia HomeSite 4.5 are the recommended products. These products provide WYSIWYG (what you see is what you get) HTML development capabilities. JavaScript and VBScript can also be incorporated into page development using these tools. More info: http://www.macromedia.com http://www.microsoft.com
Web Reporting	WebTrends	Analysis Suite	Webtrends is the standard tool to report on website activity. The product provides information on many website statistics including visitor activity, link analysis, and site errors. More Info: http://www.netig.com/products/was/default.asp

Application Type	Vendor	Product	Summary
Utility and Management Applications			
PC Utilities	Symantec	Norton Utilities 2002	Norton Utilities provides a suite of utilities for the maintenance of a PC including: • Registry check and problem correction • Hard drive performance optimization • Hard drive error detection and repair • Recovery of deleted files • Permanent and secure deletion of files The typical user will not require Norton Utilities. Norton Utilities will usually be used by PC technicians to diagnose and correct issues with the desktop. However, OCTO recommends Norton Utilities for users that must permanently and securely delete files. More info: http://www.symantec.com
PC File Compression	WinZip	WinZip Version 8.0	WinZip is the recommended product for compressing individual files either to reduce disk usage or to improve performance when sending the file as an email attachment. WinZip provides a much more robust set of compression utilities than other products. More info: http://www.winzip.com
Remote Host Application	LANDesk Software	LANDesk V6.6.2	OCTO has selected LANDesk 6.6.2 to assist with remote host desktop support. The product gives Help Desk operators control over Windows desktops, including keyboard and mouse input and system reboot, and allows them to see what's happening so an issue can be resolved more quickly. This product is a COTS (commercial off-the-shelf) product. More Info: http://www.landesksoftware.com/

Application Type	Vendor	Product	Summary
Utility and Management Applications			
Web Application Development	Microsoft	Visual Studio Suite (InterDev, VB, C++)	The District's web environment is Microsoft centric, relying upon Microsoft's IIS, MTS, and SQL Server products. As such the District has sanctioned the Microsoft development framework for web application development. Specifically, server applications will rely upon ASP and COM+. More info: http://www.microsoft.com/catalog/display.asp?site=737&subid=22&pg=1

Business Tier Applications			
Help Desk	Remedy	Remedy Help Desk	OCTO selected Remedy Help Desk to assist with Help Desk-Problem Management. Remedy allows proactive management of customer interactions and issues, and ensures customer issues are efficiently managed.
High End Statistical Analysis	SAS SPSS	SAS SPSS	SAS and SPSS are supported on both the OS/390 and PC platforms. Even though not currently implemented, users who require a non-S/390 server based solution should utilize SAS. Excel is also supported for data analysis but does not provide the high-end analysis features of SAS. However, many users will find the capabilities of Excel sufficient for their needs. More info: http://www.sas.com; http://www.spss.com
Wireless Email	RIM Cingular GoodLink	RIM 950/957 Cingular Corporate Email Server GoodLink Corporate Messaging Software	RIM is the standard wireless email device for all users of the OCTO Exchange backbone. The OCTO provided service is Cingular Corporate Email Service. The Goodlink software is the standard wireless email application.

HARDWARE STANDARDS

Type of Device	Vendor	Description	Summary
Computing – Desktop			
Desktops I - Normal User	IBM compatible (Dell, IBM Compaq, Toshiba)	P3 (1.8 GHz) Intel compatible processor, 256 MB memory, 30 gig HD, 10/100 network card, 32 MB video card, 16 bit sound card, 12x10x52 CDRW, 17" flat panel monitor	This unit is for new purchases only. This standard is re-evaluated quarterly. More info: http://www.dell.com
Desktop II -- Power User	IBM compatible (Dell, IBM Compaq, Toshiba)	P4 (2 GHz) Intel compatible processor, 512 MB memory, 40 gig HD, 10/100 network card, 32 MB video card, 16 bit sound card, 12x10x52 CDRW, 17" flat panel monitor	This unit is for new purchases only. This standard is re-evaluated quarterly. More info: http://www.dell.com
Laptops I - Normal User	IBM compatible (Dell, IBM Compaq, Toshiba)	P4 (1.2 GHz) Intel compatible processor, 128 MB memory, 20 GB HD, 8MB video RAM, AC97 Audio, 10/100 NIC, 56K modem, 8X DVDROM, 2 USB ports, 1 FireWire port, 1 parallel port, 2 serial port, 87 key keyboard, PS2 port, video port, 14" active matrix display	This unit is for new purchases only. This standard is re-evaluated quarterly. More info: http://www.dell.com
Laptop II - Power User	IBM compatible (Dell, IBM Compaq, Toshiba)	P4 (2 GHz) Intel compatible processor, 512 MB memory, 30 GB HD, 32MB video RAM, AC97 audio, 10/100 NIC, 56K modem, 8X DVDROM/CDRW combo, 2 USB ports, 1 FireWire port, 1 parallel port, 2 serial port, 87 key keyboard, PS2 port, video port, 14" active matrix display	This unit is for new purchases only.This standard is re-evaluated quarterly. More info: http://www.dell.com
Computing - Server			
Server (Application)	IBM compatible (Dell, IBM Compaq, Toshiba)	Dual P3 (1.4 GHz) Intel compatible processor, 1-2 gig memory, 2-3 18 gig 10,000 RPM HD, 16 MB video, 101 key keyboard, 2 button mouse, 52x CDROM, dual SCSI controller, dual power supplies, 2 USB ports, 2 PS2 ports, 1 FireWire port, 1 parallel port, video port, 210/100 NIC, 17" flat panel monitor	This unit is for new purchases only.This standard is re-evaluated quarterly. More info: Http://www.dell.com
Server (Database)	IBM compatible (Dell, IBM Compaq, Toshiba)	Dual P4 (2 GHz) Intel compatible processor, 2-4 gig memory, 2-3 18 gig 10,000 RPM HD, 32 MB video, 101 key keyboard, 2 button mouse, 52x CDRW, Dual SCSI Controller, dual power supplies, 2 USB ports, 2 PS2 ports, 1 parallel port, video port, 2 10/100 NIC, 17" flat panel monitor	This unit is for new purchases only. More info: http://www.dell.com

Type of Device	Vendor	Description	Summary
Computing – Desktop			
Tape Back Up	Dell	Fully automated library with a minimum of 2 drives. Will support 20 cartridges. Library capacity 2 - 4 TB. Backup rate 216 GB per hour	This standard is re-evaluated quarterly. More Info www.dell.com
LAN/WAN Devices			
Firewall (Remote Office)	Cisco Nokia	Built upon a hardened, purpose-built operating system for security services. Supports a wide range of remote access VPN clients including Cisco software, Microsoft Windows, Linux, Solaris and Apple (Mac OS X), hardware VPN clients (such as the VPN 3002), as well as PPTP and L2TP. Ability to be remotely managed and configured.	This standard is re-evaluated quarterly.
Firewall (Enterprise)	Cisco Nokia	Built upon a hardened, purpose-built operating system for security services. Supports a wide range of remote access VPN clients including Cisco software, Microsoft Windows, Linux, Solaris and Apple (Mac OS X), hardware VPN clients (such as the VPN 3002), as well as PPTP and L2TP. Ability to be remotely managed and configured.	This standard is re-evaluated annually.
Router (Remote Office)	Cisco Foundry	Built in CSU/DSU, 2 Com port, 1 WAN Port, 2 LAN ports, supports, OSPF, RIP, RIP2, multi-protocol, IP, IPX/SPX, VPN, IPSEC, 3DES/MD5 encryption. Supports remote management and Access.	This standard is re-evaluated annually.
Switch (Departmental)	Cisco 3Com	24 - 36 port density, layer 3 support, gigabit back plane with 1 fiber port. Supports 10/100 bandwidth, VLANS, port trunking, filtering via MAC Address, remotely managed, managed via web browser.	This standard is re-evaluated annually.
Switch (Enterprise)	Cisco 3Com	36 - 48 port density, layer 3 - 4 support, gigabit back plane with 2 fiber ports. Supports 10/100 bandwidth, VLANS, port trunking, filtering via MAC Address, remotely managed, managed via web browser.	This standard is re-evaluated annually.
VPN Router	Industry Standard (i.e. Cisco & Nokia)	This unit must be able to support 3DES, MD5, IPSEC, and a minimum 128 bit encryption and handle at least 30 Mbs throughput. *Very economical product for what it does. This unit provides a remote office with the capability of establishing a VPN tunnel for the entire LAN.*	This unit has been adopted by the District's Security Group. It is re-evaluated as a standard each year or every two years.

Type of Device	Vendor	Description	Summary
LAN/WAN Devices			
VPN Concentrator (Spoke)	Industry Standard (i.e. Cisco, Nokia)	This unit must handle 3DES, MD5, IPSEC and minimum 128 bit encryption. Unit must handle state-full inspection, at least 100 Mbs throughput support QoS, 1,000 concurrent connections, at least 1,000 IPSEC Tunnels. VPN C*oncentrator "Spoke" is the device that terminates the VPN connections and allows access into the organization*	This unit has been adopted by the District's Security Group. It is re-evaluated as a standard each year or every two years.
Intrusion Detection	Industry Standard (i.e. NFR, Nokia, Cisco)	IDS is a network intrusion detection system that unobtrusively monitors traffic in real time for suspicious activity misuse, abuse, attacks, anomalous behavior, and previously undiscovered attacks. Must support ATM, DS3, T1 and Fast Ethernet. Open system and able to communicate with other vendors.	This unit has been adopted by the District's Security Group as a standard. It is re-evaluated as a standard each year or every two years.
Host Intrusion Detection Systems (HIDS) - Server Sensor - Management	Industry Standard (i.e. Real Secure, Nokia, Cisco)	Supports Win2000, Smart Prevention, Active Directory, Solaris 8, website protection. Must be able to: • Terminate the specific connection • Permanently block the attacking host • Log the incident • Send an alarm to the IDS manager	These products have been adopted by OCTO as standard protection for intrusion detection. These standards are re-evaluated each year or every two years.

Type of Device	Vendor	Description	Summary
LAN Printer/Scanner/Fax			
Printer Laser (Personal)	Personal Non-Networked	10-15 pages per minute, 2-3 input trays - 750 pages, monthly volume of 50,000 pages. Support legal, A4, and letter prints. Remote management and configuration, built in network card, support laser technology	This standard is re-evaluated each year. More info.: http://www.hp.com
Printer Laser (Departmental) Laserjet	High Volume Networked	15-25 pages per minute, 2-3 input trays -1,000 pages, monthly volume of 100,000 pages. Must support legal, A4, letter, and 11x17 prints. Remote management and configuration, built in network card, support laser technology	This standard is re-evaluated each year. More info.: http://www.hp.com
Scanner Personal & Handheld	Personal Non Networked	Personal - Must be single pass, USB and parallel port capable, 600 dpi to 2400 dpi optical resolution. Capacity at least 100 sheets. Support letter 8 ½ x 11, legal and 11x17 paper	This standard is re-evaluated each year. More info http://www.hp.com

Type of Device	Vendor	Description	Summary
LAN Printer/Scanner/Fax			
Scanner Single Pass (Departmental)	High Volume Networked	Must be single pass, USB and parallel port capable, 720 dpi to 2400 dpi optical resolution. Must support VRS (video versions only). Capacity at least 500 sheets Support letter, legal and 11"x17" paper	This standard is re-evaluated each year. More Info http://www.hp.com
Fax	Panasonic or IBM	Plain paper. Hold at least 250 – 500 sheet of paper. Memory buffer for minimum 100 pages. Provides confirmation page, 14.4 - 33.6 Data/Fax mode, Print/copy in multi-mode i.e. fine, super-fine	For new purchases only. This standard is re-evaluated each year.