

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF PUBLIC WELFARE
CCIS INFORMATION TECHNOLOGY STANDARD

The **DPW Information Technology Environment Details** table describes, for each technology category, the existing environment, and any standards applicable to that category. The three columns in the table contain the following information:

Technology Category column

The Technology Category column lists each technology category.

Current Environment column

The Current Environment column describes, in broad terms, the current standard in the related category. This is not to provide a precise, comprehensive inventory, but a summary list.

Future Direction column

The Future Direction column describes, in broad terms, standards established for the future at either DPW and/or the Commonwealth of Pennsylvania. Where no formal standards exist, but there are broadly acknowledged directions or ad hoc standards, this is noted. Where helpful and available, industry trends and directions are noted.

Environment Summary

* = Commonwealth-wide standards

** = DPW standards

*** = Current industry trends/directions

DPW Information Technology Environment Details

Technology Category	Current Environment	Future Direction
Desktop Platforms		
Hardware	<ul style="list-style-type: none"> • Standard Desktop <ol style="list-style-type: none"> a. Intel Core i3-2120 b. 3.3GHz Processor c. 4GB DDR3-1333MHz SDRAM d. 250GB 7,200rpm Hard Drive e. 21" Wide Monitor, VGA/DVI f. 16X DVD-ROM • High-end Desktop <ol style="list-style-type: none"> a. Intel Core i5-2400 b. 3.1GHz Processor c. 8GB DDR3-1333MHz SDRAM d. 500GB 7,200rpm Hard Drive e. 23" Wide Monitor, VGA/DVI f. 16X DVD-ROM 	<p>For developers of Windows based applications:</p> <ol style="list-style-type: none"> a. Intel Core i7 b. 3GHz or higher c. 16GB RAM d. 500GB Hard Drive e. 48X CD ROM f. 16X DVD ROM <p>* 8GB RAM for all Standard Desktops</p> <p>* Intel Core i5, 3GHz or higher, 160GB Hard Drive; 48X CD ROM, 16X DVD ROM</p> <p>** Procure from Dell off the DGS contract</p>
Operating Systems	<ul style="list-style-type: none"> • Windows 7 (64 bit) • Windows 7 (32 bit as needed) 	<ul style="list-style-type: none"> • *** Windows 8
Servers		
Network Server Hardware	<ul style="list-style-type: none"> • IBM platforms for small to medium applications <ol style="list-style-type: none"> A. Base Config <ol style="list-style-type: none"> a. 2 socket: quad cores b. Intel Xeon c. 3.06GHz d. 12MB Cache e. 1333MHz f. 95w <p>8GB memory 2 – 146GB OS – Raid 1 146GB/300GB in Raid 5 for data Intel NIC's</p> <ol style="list-style-type: none"> B. Base Config <ol style="list-style-type: none"> a. 2 socket: 4, 6, 8, 10 cores b. Intel Xeon c. 3.06GHz d. 12 MB Cache e. 1333MHz f. 95w <p>16GB memory – min 2 – 300GB OS – Raid 1 300GB Raid 5 for data Intel NIC's</p> 	<p>*** DPW approach is consistent with industry standards</p> <p>*** Procure from Gartner defined enterprise-tier vendors -- servers configured for capacity</p> <p>** Centralize application servers (to facilitate support), distributed file and print servers (to reduce load on network)</p> <p>*** Next and future generation Intel-based for small to midsize systems</p>

Technology Category	Current Environment	Future Direction
	<ul style="list-style-type: none"> • Unisys ES Platform for large, n-tier applications • EM64T (Oracle) • Look to use VMWare whenever possible • Oracle Exadata 	
Network Server Software	<ul style="list-style-type: none"> • Windows 2003 Server R2, Enterprise Server, and DataCenter • Windows 2008 Server R2, Enterprise Server and DataCenter. All hardware licensed with 2003 R2 or 2008 R2. • Windows .NET Framework 3.5 and 4 • Oracle Enterprise Linux 5.5 	
Web Server	<ul style="list-style-type: none"> • IIS 7 and IIS 7.5 	
Media Server	<ul style="list-style-type: none"> • Cisco Content Delivery Engine 	<ul style="list-style-type: none"> • Cisco Wide Area Acceleration Services
Storage Management	<ul style="list-style-type: none"> • EMC DMX3 • EMC Clarion • EMC Data Domain • Sun STK SL8500 Tape Silo • EMC VMAX 	
Data Base Management Systems	<ul style="list-style-type: none"> • Oracle version 11gR2 • SQL Server Enterprise Edition 2008 R2 • UDS2200 	<ul style="list-style-type: none"> • Oracle 12c Enterprise Edition • SQL Server 2012 Enterprise Edition
Applications		
Personal Productivity Tools		
Office Productivity Suite	<ul style="list-style-type: none"> • MS Office 2010 	<ul style="list-style-type: none"> • MS Office 2013
Word Processing	<ul style="list-style-type: none"> • MS Word 2010 	<ul style="list-style-type: none"> • MS Word 2013
Spreadsheet	<ul style="list-style-type: none"> • MS Excel 2010 	<ul style="list-style-type: none"> • MS Excel 2013
Presentation Graphics	<ul style="list-style-type: none"> • MS PowerPoint 2010 	<ul style="list-style-type: none"> • MS PowerPoint 2013
Diagramming	<ul style="list-style-type: none"> • Visio 2010 	<ul style="list-style-type: none"> • Visio 2013
Organization Charts	<ul style="list-style-type: none"> • ** Broderbund Software's Org Plus • Visio 2010 	<ul style="list-style-type: none"> • Visio 2013
Email and Calendaring	<ul style="list-style-type: none"> • MS Outlook 2010 	<ul style="list-style-type: none"> • MS Outlook 2013
Secure Mail	<ul style="list-style-type: none"> • IronPort 	
Survey Software	<ul style="list-style-type: none"> • Zoomerang used but not a standard 	

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Desktop Database	<ul style="list-style-type: none"> MS Access 2010 	<ul style="list-style-type: none"> MS Access 2013
Internet Browser	<ul style="list-style-type: none"> MS Internet Explorer 8.0 	<ul style="list-style-type: none"> ** MS Internet Explorer 9.0
Required Browser Add-Ons	<ul style="list-style-type: none"> Java Runtime Environment 6 Step 37 	
Mainframe Host Connectivity	<ul style="list-style-type: none"> For enterprise server: Accessory Manager ver 9, Telnet VT100 WebTS and OpenTI/OpenOLTP 	
Server Connectivity	<ul style="list-style-type: none"> Dameware DirectConnect SCCM Remote Control Windows Remote Desktop Terminal Server 	
Statistical Analysis	<ul style="list-style-type: none"> SPSS Desktop Version 11.0 	<ul style="list-style-type: none"> SPSS Desktop Version 18.0
<i>User Development Tools</i>		
Learning Management System	<ul style="list-style-type: none"> eLMS through OIT 	
Collaboration Tools	<ul style="list-style-type: none"> DocuShare 6.6.1 CPX 	
<i>Other Tools</i>		
Project Management	<ul style="list-style-type: none"> MS Project Server 2010 MS Project 2010 Clarity (Only within PMO) 	
ETL (Extract, Transform and Load)	<ul style="list-style-type: none"> Informatica 9.0.1 	<ul style="list-style-type: none"> Informatica 10.x
GIS Mapping	<ul style="list-style-type: none"> ESRI's ArcView 9.3.1 ArcIMS 9.3.1 ArcGISServer 9.3.1 	<ul style="list-style-type: none"> ESRI's ArcView 10.0 ArcGISServer 10.0
Imaging	<ul style="list-style-type: none"> FileClerk 2.0.9 Conveyor Scriptable FileNet Viewer 3.3 	<ul style="list-style-type: none"> FileClerk 3.x.x
Self Service Reporting	<ul style="list-style-type: none"> Report Studio 8.4.1 	<ul style="list-style-type: none"> Cognos 10
Transaction Managers	<ul style="list-style-type: none"> Transaction Information Processor (TIP) Microsoft Distribution Transaction Coordinator 	

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Middleware	<ul style="list-style-type: none"> • IBM Websphere MQ 6.0 • WebMethods Integration Server 7.1.2 • webMethods Broker 7.1.2 • webMethods Trading Network 7.1.2 • webMethods Designer 7.1.2 • Web Services • JBOSS 4.0.5 • SOAP 1.2 • Unisys OpenTI/OpenOLTP • MOVEit Secure FTP • Microsoft BizTalk 2009 • Informatica PowerCenter 8.1.1 	
Groupware/Mail System	<ul style="list-style-type: none"> • MS Exchange (Located at CTC) 	
Componentware	<ul style="list-style-type: none"> • Java enhanced solutions including WebTS from Unisys, and MQSeries from IBM. Java Messaging Services (JMS) to support MQSeries • .Net Framework • Unisys OpenTI/OpenOLTP • AJAX 	
Workflow	<ul style="list-style-type: none"> • DocuShare 6.6.1 CPX 	<ul style="list-style-type: none"> • XEROX Forms Module
Installation Tools	<ul style="list-style-type: none"> • Install Shield 	
Systems Management Tools		
Job Scheduling/Output Management	<ul style="list-style-type: none"> • DEPCON Print Services • OPCON /XPS – Batch on all servers 	<ul style="list-style-type: none"> • ** OPCON/XPS (new version) ?

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Storage Recovery	<ul style="list-style-type: none"> • On enterprise server, Integrated Recovery Utility or File Administration System (FAS) • Veritas Netbackup with LTO3 tapes, for enterprise backup • Oracle Recovery Manager with Veritas Netbackup 7.1 for Oracle • Enterprise Recovery Manager with Veritas 7.1 Database Edition Agent for SQL Server • SL8500 Tape Silo (10,000 Tape capacity) LTO3 Tapes – 3000 tapes – 420GB size 6 Robots arms in the Tape Silo Within the Tape Silo there are: 46 drives of which 45 are LTO and 1 is DLT • 11 Media Servers talking to the Tape Silo • 1 Master Server talking to the 10 Media Servers • EMC Data Domain 	<ul style="list-style-type: none"> • Enterprise Recovery Manager with Veritas 7.0 Database Edition Agent for SQL Server • Veritas Netbackup 7.0 Enterprise Edition • Add 5 additional Media Servers • Cluster Master Media, Decrease Media Servers to 10
Systems Management Server	<ul style="list-style-type: none"> • System Center Configuration Mgr 2007 (SCCM) 	<ul style="list-style-type: none"> • SCCM 2010
Security		
Operating Systems	<ul style="list-style-type: none"> • Currently use security inherent in each operating system <ul style="list-style-type: none"> ○ Note: Use Network Associates (McAfee) for desktop virus protection Version 8.5i ○ HIPS (Host Intrusion Prevention) • DPH Anti-Virus McAfee 8.5i 	<ul style="list-style-type: none"> • *** McAfee is consistent with industry trends • *** NSA C-2 level compliance • ** Windows Server 2008 Active Directory • ** 64 bit Topology Domain Controllers • DPH Anti-Virus McAfee 8.7i

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Applications	<ul style="list-style-type: none"> • Custom per application; use Active Directory passwords at sign on • Applications to be integrated with Unified Security (CA SiteMinder) at inception or with major revisions • Radiant Logic Virtual Directory; used for combining authentication and authorization directories • IBM Tivoli Identity Manager; provisioning of Commonwealth employees • CA Identity Manager R12 Web based User management tool (Business Partners and Citizens) • CA R12 SOA Security Manager (Web Service security) • Computer Associates Security Products (SiteMinder) for authentication and authorization to web-based or web-enabled applications, both for intranet and internet access 	<ul style="list-style-type: none"> • ** CA R12.x Web Access Manager
Network	<ul style="list-style-type: none"> • Checkpoint Firewalls • IBM ISS (Intrusion Protection Systems) • BlueCoat Proxy with Content Filtering • ISA Proxy Server 2006 • Imperva (Web Application Firewall) 	<ul style="list-style-type: none"> • McAfee IPS • Database Application FW • Data Loss Prevention (DLP)
VPN for Remote Access	<ul style="list-style-type: none"> • Checkpoint Connectra 	<ul style="list-style-type: none"> • Checkpoint Mobile Access Blade
Desktop	<ul style="list-style-type: none"> • Bitlocker with full disk encryption 	<ul style="list-style-type: none"> • Bitlocker as released with new Microsoft Operating System
Laptop	<ul style="list-style-type: none"> • Bitlocker with full disk encryption 	<ul style="list-style-type: none"> • Bitlocker as released with new Microsoft Operating System
Communications		
Protocols	<ul style="list-style-type: none"> • TCP/IP (RFC1720- to evolve) 	<ul style="list-style-type: none"> • * TCP/IP
LAN Topology	<ul style="list-style-type: none"> • Ethernet 100 Base T (IEEE 802.3u) • Ethernet 100 VG (IEEE 802.12) <p>Fast Ethernet at edge and Gigabit Ethernet at core of LAN; switched 100 Base-T Ethernet services as edge architecture; switched Gigabit Ethernet (1000Base-T) switches for campus hub uplinks, server farms, and enterprise storage. 10Gig Core Connections</p>	<ul style="list-style-type: none"> • * IEEE 802.3, IEEE 802.3u, IEEE 802.12, IEEE 802.5 • ** IP • *** Fast Ethernet at edge and Gigabit Ethernet at core of LAN; switched 100 Base-T Ethernet services as edge architecture; switched Gigabit Ethernet (1000Base-T) switches for campus hub uplinks, server farms, and enterprise storage. • 10Gig Core Connections

Technology Category	Current Environment	Future Direction
Network Transport	<ul style="list-style-type: none"> • TCP/IP • MPLS Circuits • Ethernet Circuits for WAN * ATM for WAN backbone 	<ul style="list-style-type: none"> • * Ethernet Circuits for WAN • * TCP/IP for WAN transport architecture • Native TCP/IP for trans-LAN traffic
Network Management Tools	<ul style="list-style-type: none"> • Any that read SNMP (Simple Network Management Protocol) Agents (RFC 1157 - to evolve) • Cisco network mgmt. tools and Concord tools are viable to manage a Cisco network; centralize enterprise management wherever possible • Scrutinizer Netflow • Solar Winds • WildPackets Sniffer 	<ul style="list-style-type: none"> • * SNMP • ** Scrutinizer Netflow
Routers	<ul style="list-style-type: none"> • Cisco 2901 & 3825 	<ul style="list-style-type: none"> • IEEE 802.3, IEEE 802.5 • Cisco base
Ethernet Switches	<ul style="list-style-type: none"> • Cisco 3500, 3560, 3750 & 2960 	<ul style="list-style-type: none"> • ** Cisco
Switches, Hubs	<ul style="list-style-type: none"> • Ethernet 10 Base T (IEEE 802.3) • Ethernet 100 Base T (IEEE 802.3u) • Ethernet 100 VG (IEEE 802.12) 	<ul style="list-style-type: none"> • IEEE 802.3, IEEE 802.3u, IEEE 802.12 • Phasing out IEEE 802.3
Fiber, wiring	<ul style="list-style-type: none"> • EIA/TIA 568-1991 	<ul style="list-style-type: none"> • * EIA/TIA 568-1991
Adapter cards	(On STATE Contract)	
Voicemail	<ul style="list-style-type: none"> • Verizon National Unified Messaging System • Siemens VoIP Messaging 	
Voice Response/Voice Processing	<ul style="list-style-type: none"> • IVR Connection 	<ul style="list-style-type: none"> • Evolve to WEB Interface • IVR
Printers/Scanners		
Desktop Printers	Reduce dependence on individual desktop printers	<ul style="list-style-type: none"> • ** No desktop printers
LAN	<ul style="list-style-type: none"> • Existing HP, Lexmark and Xerox • Existing Imagistics • Existing MFD's • Xerox, Cannon & HP Scanners 	<ul style="list-style-type: none"> • ** Printers, Copiers and MFD's must be purchased and/or leased from vendors listed on the DGS contract: Kyocera, Toshiba, IKON
Network Printers (High Speed)	<ul style="list-style-type: none"> • Network connected (HP, Lexmark and Xerox) – Located at various locations within DPW 	<ul style="list-style-type: none"> • ** HP, Lexmark and Xerox
Desktop Scanners	<ul style="list-style-type: none"> • Xerox 262i Scanners 	