COMMONWEALTH OF PENNSYLVANIA
HEALTH & HUMAN SERVICES DELIVERY CENTER

INFORMATION TECHNOLOGY STANDARD

Name of Standard: **HHS DC IT Environment**	Number: **STD-DHS001**
Domain: **Appendix II**	Category: **Summary of IT Environment**
Date Issued: **04/01/2002** Date Revised: **07/21/2020**	Issued by Direction Of: **Jon Arnold, Chief Technology Officer** **Health & Human Service Delivery Center**

Abstract:

The Health & Human Services Delivery Center (HHS DC) has established an intranet site that contains Department wide IT Business and Technical Standards. This site, referred to as the **Business and Technical Standards/Policies Compliance Document,** is a central repository of technical standards and policies followed by the Commonwealth of Pennsylvania Health & Human Services Delivery Center (HHS DC).

 This document contains a summary of the information technology environment within HHS DC.

General:

The purpose of this document is to give a summary of the information technology environment at HHS DC that serves as an introduction to this environment for information technology contractors and vendors that might work with HHS DC. Authorized contractors and vendors that do not have access to the HHS DC intranet, must gain access to the HHS DC **Business and Technical Standards/Policies Compliance Document** at our internet site shown below.

https://www.dhs.pa.gov/providers/Providers/Pages/Business%20and%20Tech%20Standards/Business-and-Tech-Standards-Apendices.aspx

This document DOES NOT contain specific information related to the current application architecture environment within HHS DC. DHS Application Lifecycle Management (ALM) Baseline documents contain a variety of information related to application architecture, security architecture, content management, desktop tools and testing and monitoring. These documents are only available to HHS DC intranet users.

Standard:
HHS DC Information Technology Environment
Summary

Description

The **HHS DC Information Technology Environment Summary** 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.

Retire column

Technologies that are being phased out.

Plans should be developed to phase out and replace, especially if there is risk involved such as lack of vendor support.

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 HHS IT DC 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

  ** = HHS DC standards

 *** = Current industry trends/directions

HHS DC Information Technology Environment Summary

Technology Category	Retire	Current Environment	Future Direction
Desktop Platforms		Total of about 15,000 (Department-wide)	

Hardware	• **Minimum Desktop**
	  a. Pentium 4 or lower
	  b. 1GB MHz or lower Processor
	  c. 1GB RAM
	  d. Hard disk drives
	  e. CRT monitors, flat panel monitors smaller than 22"
	
	• Note – Pentium 4 or lower computers should be scheduled for replacement
		• **Standard Desktop**
		  a. Intel Core i7
		  b. 3.3GHz (or higher) Processor
		  c. 16 GB DDR4 RAM
		  d. 256 GB Solid State Drive
		  e. 23" Wide Monitor, Display Port
		  f. CD-R/DVD-R
		
		  g.	

Operating Systems	• Windows 7 • Windows 2000 Professional • Windows XP	• Windows 10 (64-bit)	
Laptops / Ultra-books		Total of about 3,500 (Department-wide)	

Technology Category	Retire	Current Environment	Future Direction

Hardware	• **Minimum Laptop**
	  a. Pentium 4 or lower
	  b. 1GHz or lower Processor
	  c. 1GB RAM
	  d. Hard Disk Drive
	
	•
		• **Standard Laptop**
		  a. Intel Core i7
		  b. 2.2GHz (or higher) Processor
		  c. 8GB DDR4
		  d. 256 GB Solid State Drive
		  e. 14" LED screen
		  f.
		  Webcam
		  g. Wi-Fi
		
		• **Ultra-book**
		  a. Intel Core i7
		  b. 2.6GHz (or higher) Processor
		  c. 16GB DDR4 RAM
		  d. 256 GB Solid State Drive
		  e. 13.3" LED touch screen
		  f. Wif-Fi
		  g. Webcam
		
		  f. Internal 8x DVD+/-RW
			•

Technology Category	Retire	Current Environment	Future Direction
Operating Systems	- Windows 7 - Windows 2000 Professional - Windows XP	Windows 10 (64-bit)	
Tablets			
Hardware	Motorola Xoom	- Motorola Xyboard 10.1 - Samsung Galaxy Tab 8.9 or 10.1	
Operating Systems		Android	
Handhelds			
Hardware		- Smartphone - Tablets (Xcom/IPad)	
Servers			

Technology Category	Retire	Current Environment	Future Direction
Network Server Hardware		No longer purchase the physical hardware. Ordered through EDC, Cloud vendors, or it is a virtual server.	

Technology Category	Retire	Current Environment	Future Direction
Network Server Software	• Windows 2000 Server • Windows 2003 Server • Windows 2008 Server R2, Enterprise Server, and Datacenter • Windows .NET Framework 3.5 and 4	• Windows 2012-2016-2019 • Windows .NET Framework 4.6 & 4.7 • Red Hat Enterprise Linux 8	
Web Server	• IIS 6.0 • IIS 5.0 • IIS 4.0	• IIS 7 and IIS 7.5	
IDE		• Microsoft Visual Studio 2019	
Media Server		• Cisco Content Delivery Engine	• Cisco Wide Area Acceleration Services
Storage Management	• EMC Symmetrix with 2GB of cache & 1 terabyte of usable disk space, 1 EMC Symmetrix with 32GB of cache & 9 terabytes of usable disk space, 1 Storage Tek tape silo with 20 tape drives & 618 dlt tape slots at 70GB per tape • EMC Centera	• EMC DMX3 • EMC Clarion • EMC Data Domain • Sun STK SL8500 Tape Silo • EMC VMAX	

Data Base Management Systems	• Oracle Enterprise Edition 10.2.0.3. • MS SQL Server 2005 and lower	• Oracle version 11gR2 • SQL Server Enterprise Edition 2008 R2 • UDS2200 • SQL Server 2012 Enterprise Edition • SQL Server Enterprise Edition 2014 • SQL Server Client Tools 2014 • SQL Server Express 2014	• Oracle 19c Enterprise Edition • SQL Server Enterprise Edition 2019 (in transition)
Rapid Application Development		• Oracle Apex (CAMA) Ver.5.1	
DATABASE PROVIDER		• ODP .NET 11.2.0.4	
DATABASE DEVELOPMENT & ADMINISTRATION		• SQL Plus 11.2.0.4 • SQL Developer 4.0 • PL/SQL Developer 10.5 • Oracle Developer Tools for .NET 11.2.0.4 • SQL Server Management Studio 2014 • TOAD 11.5 • DBArtisan 9.2	
Data Modeling		• ERWin R9.8-b6486-64bitTAA	
Database Monitoring		• Oracle Enterprise Manager (Grid Control) 12c • SQL Server Enterprise Manager 2014 • Idera Diagnostics Manager for SQL Server 8.0	
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		•	

Applications			
Personal Productivity Tools			
Office Productivity Suite	• MS Office 2013 • MS Office 2016	• MS Office 365 ProPlus	
Word Processing	• MS Word 2013 • MS Word 2016	• MS Word (Office 365)	
Spreadsheet	• MS Excel 2013 • MS Excel 2016	• MS Excel (Office 365)	
Presentation Graphics	• MS PowerPoint 2013 • MS PowerPoint 2016	• MS PowerPoint (Office 365)	
Diagramming	• Visio 2010	• MS Visio 2013 • Visio 2016	• MS Visio (Office 365)
Organization Charts		• ** Broderbund Software's Org Plus • Visio 2016	• MS Visio (Office 365)
Email and Calendaring	• MS Outlook 2013 • MS Outlook 2016	• MS Outlook (Office 365)	
Secure Mail		• Exchange Online Protection	
Survey Software		• Zoomerang used but not a standard	

Desktop Database	• MS Access 2016 • MS Access 3013 • FoxPro • MySql • Progress • DB4 • RBase • Lotus Approach 97 • MS Access 2007	• MS Access (Office 365)	
Internet Browser	• MS Internet Explorer 7 • MS Internet Explorer 8.0 • MS Internet Explorer 9.0 • MS Internet Explorer 11.0	• Google Chrome • Microsoft Edge • MS Internet Explorer 11.0	• Microsoft Edge (Chromium-based)
Mainframe Host Connectivity		• For enterprise server: Accessory Manager ver 9, Telnet VT100 • WebTS and OpenTI/OpenOLTP	
Server Connectivity	• PC Anywhere	• Dameware • DirectConnect • SCCM Remote Control • Windows Remote Desktop • Terminal Server	
Statistical Analysis		• SPSS Desktop Version 11.0	• SPSS Desktop Version 18.0
User Development Tools			
Learning Management System		• eLMS through OIT	
Collaboration Tools	• DocuShare 6.5.3 CPX	• DocuShare 6.6.1 CPX	
Other Tools			
Project Management	• MS Project 2010	• MS Project Server 2010 • MS Project 2013 • MS Project 2016 • Clarity (Only within PMO)	• MS Project (Office 365)

Technology Category	Retire	Current Environment	Future Direction
Other Tools			
ETL (Extract, Transform and Load)		• Informatica 10.1.1	• Informatica 10.4
DATA WAREHOUSE		• Informatica 10.1.1	· Informatica 10.4

GIS Mapping		• ESRI's ArcGIS 10.5.1	• ESRI's ArcGIS 10.8 • ArcGIS Pro 2.5
DATA DISCOVERY/VISUALIZATION		• SAS 9.4 R5 • Tableau 2019.2	• SAS 9.4 R7 • Tableau 2020.2
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SEARCH	•	• Google Appliance 7.2	•
REPORTING	•	• SQL Server Reporting Services 2014	•
FILE/IMAGE STORAGE	•	• Docushare 6.6.1.6 • Oracle WebCenter Content Core 11g • EMC Documentum Content Server 7.1	•
Imaging/Document Intake	• FileClerk 2.0.9	• FileClerk 2.0.9 • Conveyor Scriptable • FileNet Viewer 3.3	• FileClerk 3.x.x
Self Service Reporting	• Cognos Query Studio	• Cognos BI 10.2.2 • Cognos Report Studio	• Cognos BI 11.1.5 • Cognos Analytics Report Authoring
DATA WAREHOUSE		• Cognos PowerPlay/Transformer 10.2.2	Cognos PowerPlay/Transformer 11.1.4
Transaction Managers		• Transaction Information Processor (TIP) • Microsoft Distribution Transaction Coordinator	
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Middleware	• JBOSS 4.2.2 Used with eMediary • Microsoft BizTalk 2009	• 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-Central 8.0.11 • MOVEit Secure FTP - DMZ ver. 8.1 • Informatica PowerCenter 8.1.1	• MOVEit DMZ ver. 8.2 • MOVEit Central ver. 8.1
WEBMETHODS	•	• WebMethods 9.8	•
Mainframe Integration	•	• OpenTI 11.1.8 • JCA 1.0	•
Data Integration	• Microsoft BizTalk 2013	• Microsoft BizTalk 2016 • KMSYS 1.0 • IBM WebSphere 6.4.5 • Informatica ETL Tool 9.0.1 • IBM MQ Services – ESB toolkit(provide with BizTalk) 2013 • SQL Server Integration Services (SSIS) 10.5	•

Groupware/Mail System		• MS Exchange (Located at CTC)	
Component ware		• 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	• DocuShare 6.5.3 CPX	• DocuShare 6.6.1 CPX	• XEROX Forms Module
Installation Tools		• Install Shield	
Systems Management Tools			
Output Management		• DEPCON Print Services	
Job Scheduling/ Batch Services	• OPCON 4.25.03	• OPCON /XPS (5.20 SP1) – Batch on all servers	• OPCON 16 or Latest Version

| Storage Recovery | | On enterprise server, Integrated Recovery Utility or File Administration System (FAS) Veritas Netbackup with LTO3 tapes, for enterprise backup SL8500 Tape Silo (10,000 Tape capacity) 3000 tapes – LTO3 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 Oracle RMAN to Data Domain Native SQL Server Backups to Data Domain | 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		• System Center Configuration Mgr Current Branch	
Security			
Operating Systems		• FireEye Endpoint Agent	• *** N S A C-2 level compliance • ** Windows Server 2008 Active Directory • ** 64-bit Topology Domain Controllers •
SITEMINDER		• Policy Server 12.52 SP1 • Policy Store 12.52 SP1 • WAM UI 1 2 . 5 2 SP1 • Report Server 3.3 SP1 • WEB Agents 12.52 SP1	•
IDENTITY MANAGER		• IDM Server 12.6.4 • WebSphere 8.5 FP2 • WebSphere plug-in ver.7	•
SOA GATEWAY		• Policy Manager 7.1.10 • Network Director 7.1.10 • Microsoft Gateway ver.7	•
ITIM		• ITIM 5.1.0.9 • WebSphere App Server (WAS) ver.7.0.0.23 • Tivoli Directory Integrator (TDI) ver.7.1.0.7 • Tivoli Directory Server (TDS) ver. 6.3.0.17 • DB2 ver.9.7.200.359 • WebSphere Plugin 7	•
SAILPOINT		• Identity IQ 6.3	•

CyberArk		- EPV 9 . 2 - CPM 9 . 2 - PSM 9 . 2 - PVWA 9.2	•
RADIANTLOGIC VDS		• VDS Server 7.1.15	•
APPLICATION MONITORING		• SPLUNK 6.2.1	•
CA Advanced Auth		- AuthMinder 7.1.01 - RiskMinder 3.1.01 - Adapter 2.2.9	•
VIRTUALIZATION		- Hyper-V - VMware	•
Operating System		- Windows 2012/R2 - Linux- Red Hat Enterprise Linux (RHEL) v6.6 - NETSCALER CITRIX	•
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Applications		•	•

Network	• Custom per application; use NT domain passwords at sign on	• 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 R12.5 Web based User management tool (Business Partners and Citizens) • CA R12.5 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	• ** CA R12.x Web Access Manager • Web Service Security Appliance
VPN for Remote Access	• ISA Proxy Server 2004 • IBM ISS (Intrusion Protection Systems) • Imperva (Web Application Firewall) • McAfee IPS	• Checkpoint Firewalls • Checkpoint IPS • BlueCoat Proxy with Content Filtering Append (at OA) • ISA Proxy Server 2006	• Database Application FW • Data Loss Prevention (DLP)
Desktop	Checkpoint Connectra	• Checkpoint Mobile Access Blade	•
Laptop	Safeboot	• Bitlocker with full disk encryption	• Bitlocker as released with new Microsoft Operating System
Tablets	Safeboot	• Bitlocker with full disk encryption	• Bitlocker as released with new Microsoft Operating System

Communications	Safeboot	• Bitlocker with full disk encryption	• Bitlocker as released with new Microsoft Operating System
Protocols		•	•
LAN Topology		• TCP/IP (RFC1720- to evolve)	• * TCP/IP
Network Transport		• Ethernet 100 Base T (IEEE 802.3u) • Ethernet 100 VG (IEEE 802.12) 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	• * 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
Network Management Tools	Frame Relay for remote site circuits	• TCP/IP • MPLS Circuits • Ethernet Circuits for WAN	• * Ethernet Circuits for WAN • * TCP/IP for WAN transport architecture • Native TCP/IP for trans-LAN traffic
Routers	• Scrutinizer Netflow	• 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 • Netflow Auditor version 9 • Solar Winds • WildPackets Sniffer	• * SNMP
Ethernet Switches	Cisco 3825	• Cisco 2901 & 3925	• IEEE 802.3, IEEE 802.5 • Cisco base

Fiber, wiring	• Bay Networks 350F, 450, 450T & 470s • 3Com • HP • Compaq • Dell • Cisco 3500 • Cisco 3650 v1 Cisco 2960	• Cisco 3560 v2 or newer, & 3750	• ** Cisco
Adapter cards	•	• EIA/TIA 568-1991	• * EIA/TIA 568-1991
Voicemail	•	• (On STATE Contract)	
Voice Response/Voice Processing	• Octel	• Verizon National Unified Messaging System • Penn Connect Xpressions	•
Printers/Scanners	• Voice Information Processing System (VIPS), communicating to Unisys enterprise server	• IVR Connection • Cisco On Premise Solution	•
Desktop Printers	•	•	•
LAN	Use is discouraged; those used are Lexmark (predominantly), Xerox and HP	Reduce dependence on individual desktop printers	** No desktop printers
Network Printers (High Speed)	All brands and models as required.	• Existing network printers • Existing MFD's •	** P r i n t e r s , and MFD's must be purchased and/or leased from vendors listed on the DGS contract using the BVD process, current MFD contract vendors: Cannon, HP, Konica Minolta, Kyocera, Ricoh, Sharp, Xerox
Desktop Scanners		•	Fujistu fi-7700 high-speed flatbed scanner

	• Xerox 632 Scanners • Xerox 262i Scanners Xerox 5445 Scanners	• Xerox 6440 desktop scanner • HP 5000 desktop scanner • HP N9120 high speed flatbed scanner • Fujitsu fi-7600 high speed scanner	•
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Exemptions from this Standard:

There will be no exemptions to this standard.

Refresh Schedule:

All guidelines and referenced documentation identified in this standard will be subject to review and possible revision annually or upon request by the HHS Delivery Center Domain Leads.

Standard Revision Log:

Change Date	Version	Change Description	Author and Organization
04/01/2002	1.0	Initial Creation	Beverly Shultz
12/19/2003	1.1	Updated document	Standards section
09/01/2006	1.2	Updated document	SLM Section
10/24/2006	2.0	Updated document	SLM Section
09/08/2008	2.1	Updated content & reformatted	Standards Team Lead
04/13/2010	2.2	Updated content	Standards Team Lead
08/23/2010	2.3	Updated Content	Standards Team Lead
09/30/2010	2.4	Updated Content	Rich Sage
10/12/2010	2.5	Updated Content	Rich Sage
01/31/2011	2.6	Updated Content	Domain Leads
04/20/2012	2.7	Updated Content & cosmetic changes to appearance	Domain Leads/Rich Gill
08/21/2013	2.8	Updated content, and cosmetic changes to appearance	Domain Leads/Rich Gill
02/23/2015	2.9	Updated content, and cosmetic changes to appearance	Domain Leads/Rich Gill/Rich Davis
05/03/2016	3.0	Updated content, and cosmetic changes to appearance	Domain Leads William Torres
02/18/2020	4.0	Update contents, links and fit new format	Andy Bashore/Alissa Detman
07/21/2020	4.1	Remove Signature	P. Gillingham