

# WINNEBAGO COUNTY INFORMATION TECHNOLOGY STANDARDS 2019/2020

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**PLATFORM ARCHITECTURE STANDARDS:  
END USER SOFTWARE**

COMPONENT	CURRENT STANDARDS
Operating System	Windows 10 Professional x64
Word Processor	Microsoft Word 2016 (latest release) or equivalent open source alternatives
Spreadsheets	Microsoft Excel 2016 (latest release) or equivalent open source alternatives
Presentations	Microsoft PowerPoint 2016 (latest release) or equivalent open source alternatives
Database	Microsoft Access 2016 (latest release) or equivalent open source alternatives
E-Mail Client	Microsoft Outlook 2016 / Outlook Web Access (latest release) or equivalent open source alternatives
Project Management	Microsoft Project Professional 2016 (latest release) or equivalent open source alternatives
Graphics	Microsoft Visio Professional 2016 (latest release) or equivalent open source alternatives
Web Browser	Microsoft Internet Explorer or Edge (latest release), unless application influenced
Antivirus	Symantec Endpoint Protection (latest release) for Workstations and Servers
Patch Management	Windows Server Update Services (WSUS)
Thin Client Access	Citrix XenApp
Remote Access	Citrix Online (GoToMyPC) , Cisco VPN Client
Other	Must be tested/approved in advance

**PLATFORM ARCHITECTURE STANDARDS:  
END USER HARDWARE**

COMPONENT	SMALL FORM FACTOR DESKTOPS/ ALL-IN-ONES	LAPTOPS
Power	Single	Single
CPU	Intel Core i5-8500 or greater	Intel Core i5-8500 or greater
Disk Configuration	256 GB SSD or greater	256 GB SSD or greater
Media Drive	DVD R/W combo Drive	DVD R/W combo Drive
Memory	16 GB RAM Expandable	16 GB RAM
Monitor	23" Wide Screen Flat Panel	Wide Screen WXGA+ LCD Panel
Video Card	Dual monitor capable with HDMI/DVI or Display Port	
Interface Card(s)	Ethernet 10/100/1000 Base-T	Built-in 10/100/1000 Base-T Ethernet Card 802.11G/N Wireless (Built in)
Operating System	Windows 10 Professional x64	Windows 10 Professional x64
File System	NTFS	NTFS
Maintenance	3 Year on-site, next business day	3 Year on-site, next business day
Additional Hardware Requirements	UL Approved Surge Processor (new)	UL Approved Surge Processor (new) External mouse, Keyboard and Docking Station (if used as desktop) Security Lock
Pre-Install Options	All components (hardware) installed	All components (hardware) installed

## PLATFORM ARCHITECTURE STANDARDS: MOBILE DEVICES

COMPONENT	CURRENT STANDARDS
Platform	Android/ Apple iOS
Software Compatibility	MS Exchange Active Sync, Calendar, Contacts, Tasks, Memo Pad, Calculator
Connectivity	TCP/IP Internet or USB enabled

\*Does not guarantee seamless interaction/compatibility with all Winnebago County applications

## PLATFORM ARCHITECTURE STANDARDS: GENERAL SERVER STANDARDS

COMPONENT	CURRENT STANDARDS
Web/Application Servers	Microsoft Internet Information Services Apache Web Server (if required by COTS package) Tomcat (if required by COTS package)
Operating System	Microsoft Windows Server 2016 Standard (latest release) Microsoft Windows Server 2016 Datacenter (Hyper-V) (latest release) Oracle Linux CentOS Linux
Thin Client Access	Citrix XenApp
Hardware	Intel (Windows)
Backup	Veritas Backup Exec 16, CrashPlan Cloud Backup (remote sites)
Storage	SAN/DAS/NAS
E-Mail	Microsoft Exchange Server 2013 Enterprise Edition (latest release)
Network Protocol	TCP/IP v4, v6

**PLATFORM ARCHITECTURE STANDARDS:  
FILE / PRINT / WEB SERVERS**

COMPONENT	FILE / PRINT SERVERS	WEB SERVERS (INTEL)	WEB SERVERS (*NIX)
Type	INTEL	INTEL	*NIX
Power	Redundant, UPS required if not Data Center resident	Redundant, UPS required if not Data Center resident	Redundant, UPS required if not Data Center resident
Fault Tolerant /Disk Configuration	Operating System Drives- Raid 1 (Mirrored)  Database / Application Drives – RAID 5 or higher, utilizing SAN if Data Center resident	Operating System Drives- Raid 1 (Mirrored)  Database / Application Drives – RAID 5 or higher, utilizing SAN if Data Center resident	Operating System Drives- Raid 1 (Mirrored)  Database / Application Drives – RAID 5 or higher, utilizing SAN if Data Center resident
CPU	2-way Quad 2.4 GHz or greater	2-way Quad 2.4 GHz or greater	2-way Quad 2.4 GHz or greater
Network Interface Cards	Dual Ethernet 1000 Base-T	Dual Ethernet 1000 Base-T	Dual Ethernet 1000 Base-T
Operating System	Windows Server 2016 (latest release)	Windows Server 2016 (latest release)	Oracle Linux, CentOS Linux
Monitor	Not required if NOC resident	Not required if NOC resident	Not required if NOC resident
RAM	128 GB Minimum Cache: 256 MB	128 GB Minimum Cache: Database/Application specific	128 GB Minimum Cache: Database/Application specific
File System	NTFS	NTFS	EXTFS
Third Party Software Requirements	Symantec Endpoint Protection  MS WSUS	Symantec Endpoint Protection  MS WSUS	
Web Server Software	N/A	Internet Information Server (latest version)	Apache (latest version) Tomcat (latest version)
Platform	HP	HP	HP
Maintenance	5 Year, 24/7, 4 hour on-site, parts & labor included	5 Year, 24/7, 4 hour on-site, parts & labor included	5 Year, 24/7, 4 hour on-site, parts & labor included
Additional Hardware Requirements	RAID 5 Controller  Rack mounting rails if Data Center Resident  HBAs (if connected to SAN)	RAID 5 Controller  Rack mounting rails if Data Center Resident  HBAs (if connected to SAN)	RAID 5 Controller  Rack mounting rails if Data Center Resident  HBAs (if connected to SAN)
Pre-Install Options	None	None	None
Storage and Backup	Veritas Backup Exec 16 (latest release) / CrashPlan	Veritas Backup Exec 16 (latest release) / CrashPlan	Veritas Backup Exec 16 (latest release) / CrashPlan

**PLATFORM ARCHITECTURE STANDARDS:  
DATABASE / APPLICATION SERVERS**

COMPONENT	DATA BASE SERVERS (INTEL)	DATABASE SERVERS (*NIX)	APPLICATION SERVERS (INTEL)	APPLICATION SERVERS (*NIX)
Power	Redundant, UPS Required if not NOC-resident	Redundant, UPS required if not NOC- resident	Redundant, UPS required if not NOC- resident	Redundant, UPS required if not NOC-resident
Fault Tolerance / Disk configuration	Operating System Drives- Raid 1 (Mirrored)  Database / Application Drives – RAID 5 or RAID 10(utilizing SAN if NOC resident)	Operating System Drives- Raid 1 (Mirrored)  Database / Application Drives – RAID 5 or RAID 10 (utilizing SAN if NOC resident)	Operating System Drives- Raid 1 (Mirrored)  Database / Application Drives – RAID 5 or RAID 10 (utilizing SAN if NOC resident)	Operating System Drives- Raid 1 (Mirrored)  Database / Application Drives – RAID 5 or RAID 10 (utilizing SAN if NOC resident)
CPU	2-way Quad 2.4 GHz or greater	2-way Quad 2.4 GHz or greater	2-way Quad 2.4 GHz or greater	2-way Quad 2.4 GHz or greater
Network Interface Cards	Dual Ethernet 1000 Base-T	Dual Ethernet 1000 Base-T	Dual Ethernet 1000 Base-T	Dual Ethernet 1000 Base-T
Operating System(s)	Windows Server 2016 (latest release)	Oracle Linux (latest release)	Windows Server 2016 (latest release)	CentOS Linux (latest release)
Monitor	Not required if NOC resident	Not required if NOC resident	Not required if NOC resident	Not required if NOC resident
RAM	32.0 GB Minimum Cache – Database/ Application specific	32.0 GB Minimum Cache – Database/ Application specific	32.0 GB Minimum Cache – Database/Application specific	32.0 GB Minimum Cache – Database/Application specific
File System	NTFS		NTFS	
Third Party Software Requirements	Symantec Endpoint Protection  MS WSUS		Symantec Endpoint Protection  MS WSUS	
Platform	HP	HP	HP	HP
Maintenance	5 Year, 24/7, 4 hour on-site, parts & labor included	5 Year, 24/7, 4 hour on-site, parts & labor included	5 Year, 24/7, 4 hour on-site, parts & labor included	5 Year, 24/7, 4 hour on-site, parts & labor included
Additional Hardware Requirements	RAID 5 Controller  Rack mountable rails if NOC resident  HBAs (if connected to SAN)	RAID 5 Controller  Rack mountable rails if NOC resident  HBAs (if connected to SAN)	RAID 5 Controller  Rack mountable rails if NOC resident  HBAs (if connected to SAN)	RAID 5 Controller  Rack mountable rails if NOC resident
Storage and Backup	Veritas Backup Exec 16 (latest release) / CrashPlan	Veritas Backup Exec 16 (latest release) / CrashPlan	Veritas Backup Exec 16 (latest release) / CrashPlan	Veritas Backup Exec 16 (latest release) / CrashPlan

**PLATFORM ARCHITECTURE STANDARDS:  
APPLICATION DEVELOPMENT**

COMPONENT	*NIX	INTEL	INTERNET / INTRANET	GIS
Database Software	Oracle 12c (latest release)	SQL Server (latest release)  Oracle 12c or latest release	N/A	SQL Server (latest release)
Application Development Frameworks	Java	.NET Framework (latest release)  Java	.NET Framework (latest release)  Java	.NET Framework (latest release)  ESRI
Virtualization	Microsoft Hyper-V	Microsoft Hyper-V	Microsoft Hyper-V	N/A
Software And Development Tools  (Report Writing Products Are Listed On Page 8.)	N/A	Microsoft Visual Studio 2012 (latest release)	Microsoft Visual Studio 2012 (latest release)	ArcGIS 10 & Extensions (latest release) ArcGIS Server 10.1 or ArcPad Microsoft Visual Studio 2012 (latest release)
Version And Release Control	TBD	TBD	TBD	TBD
LDAP/ Directory/ Authentication	Native operating system (Solaris, Linux, AIX)	Active Directory	Active Directory	Native Operating System
Data And Process Modeling	MS Visio Professional 2016	MS Visio Professional 2016 (latest release) or equivalent open source alternatives	MS Visio Professional 2016 (latest release) or equivalent open source alternatives	MS Visio Professional 2016 (latest release) or equivalent open source alternatives

<p>All applications should be web-browser based and be developed following the n-tier development model to clearly separate presentation (look and feel), from the applications (business logic), from the database. N-tier applications have the advantage that any one tier can run on an appropriate processor or operating system platform independently of the other tiers.</p>	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <div style="background-color: #90EE90; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Presentation</div> <div style="background-color: #FFDAB9; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Application</div> <div style="background-color: #ADD8E6; border: 1px solid black; padding: 2px;">Database</div> </div> <div style="text-align: right;"> <p>—— ASP HTML XML</p> <p>----- ODBC JDBC SQL</p> </div> </div>
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**PLATFORM ARCHITECTURE STANDARDS:  
ENTERPRISE SOLUTION PLATFORMS**

PLATFORM	CURRENT STANDARDS
Report Writing: Departmental Reporting Needs	Crystal Reports Microsoft SQL Reporting
Web Content Management	
Web Search Engine	Google
GIS	ArcGIS 10.x or Latest Release supported by WinGIS & Extensions  ArcGIS Server 10.x or ArcPad
Voice Communication	Mitel 3300 IP Communications Platform
Virtualized Datacenter Management	Microsoft Systems Center Virtual Machine Manager 2012 R2 or latest release
Email Archival	RazorSafe RS family Archiver



## WINNEBAGO COUNTY DATA COMMUNICATIONS STANDARDS

### NETWORK PROTOCOLS

CURRENT	FUTURE
TCP/IP v4	TCP/IP v6

### CABLING STANDARDS (Structured cabling based on the ANSI/TIA/EIA and ISO standards) Horizontal (cabling and pathways)

CURRENT	FUTURE
CAT6 UTP and SCTP	Fiber Optics

#### Outlets

CURRENT	FUTURE
Category 6 Jacks	
Four Cat6 terminated per location	

#### Between Buildings / Backbone

CURRENT	FUTURE
Dependent on Distance	
62.5 / 125 OFNP multi-mode and single mode optical fiber.	
Between buildings - 12 pair multi-mode and 12 pair single mode	
Between floors – 6 pair multimode and 6 pair single mode	

### NETWORK HARDWARE

ROUTING
HP 5400 Family (Layer 3)
HP 7100 Family (MSF C)

SWITCHING
HP 5400 ProCurve Family – Core applications (MDF)
HP 5400 ProCurve Family – Wire Closet (Medium to Large IDF)
HP 2900/3500 ProCurve Family – Wire Closet (Small to Medium IDF)

Winnebago County Enterprise Network LAN infrastructure is a purely switched environment. The size of the switch used is based on the size of the workforce supported. The fixed chassis switches such as 3500 are used only in cases where the workforce supported is less than 48 total devices. After that breakpoint a chassis style switch is used.

WINNEBAGO COUNTY DATA COMMUNICATIONS STANDARDS  
(Continued)

**FIREWALLS**

Cisco ASA family with IPS  
Palo Alto family with IPS

**NETWORK PERIMETER SECURITY**

FireEye  
Barracuda Spam Filter

**VPN CLIENT CURRENT**

Cisco AnyConnect VPN Client

**CONTENT/CACHING ENGINE**

Barracuda Web Filter

**CONTENT SERVICES SWITCHING/LOAD BALANCING**

Coyote Point