

# WINNEBAGO COUNTY INFORMATION TECHNOLOGY STANDARDS 2023/2024

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**PLATFORM ARCHITECTURE STANDARDS:  
END USER SOFTWARE**

COMPONENT	CURRENT STANDARDS
Operating System	Windows 10 Professional x64
Word Processor	Microsoft Word 2021 (latest release)
Spreadsheets	Microsoft Excel 2021 (latest release)
Presentations	Microsoft PowerPoint 2021 (latest release)
Database	Microsoft Access 2021 (latest release)
E-Mail Client	Microsoft Outlook 2021/ Outlook Web Access (latest release)
Project Management	Microsoft Project Professional 2021 (latest release)
Graphics	Microsoft Visio Professional 2021 (latest release)
Web Browser	Edge, Chrome (latest release), unless application influenced
Antivirus	Trellix Endpoint (latest release) for Workstations and Servers
Patch Management	Windows Server Update Services (WSUS)
Remote Access	PaloAlto Global Protect 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 i7-10700 or greater	Intel Core i7-1165G7 or greater
Disk Configuration	512 GB SSD (1TB preferred)	512 GB SSD (1TB preferred)
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 WiFi 6 (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

### HAND HELD MOBILE DEVICES

COMPONENT	PHONES	TABLETS
Platform	Android / Apple iOS	Android / iPadOS / Microsoft Windows
Software Compatibility	MS Exchange Active Sync, Calendar, Contacts, Tasks, Memo Pad, Calculator	MS Exchange Active Sync, Calendar, Contacts, Tasks, Memo Pad, Calculator
Connectivity	TCP/IP Internet or Cellular	TCP/IP Internet, Cellular, or USB enabled
Memory	N/A	Apple / Android – 3 GB or greater (depending on model)  Microsoft - 16 GB or greater
Storage	64 GB or greater	256 GB or greater

\*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 2022 Standard/Datacenter (or latest release) VMWare ESXi 7.x (or latest release) Oracle Linux 8.x (or latest release)
Hardware	Intel (Windows)
Backup	Rubrik
Storage	SAN/NAS

E-Mail	Microsoft Exchange Server 2013 Standard Version (or latest release)
Network Protocol	TCP/IP v4, v6

### 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	Intel Xeon 8352Y or greater	Intel Xeon 8352Y or greater	Intel Xeon 8352Y or greater
Network Interface Cards	Dual Ethernet 1000 Base-T Dual 10 GbE	Dual Ethernet 1000 Base-T Dual 10 GbE	Dual Ethernet 1000 Base-T Dual 10 GbE
Operating System	Windows Server 2022	Windows Server 2022	Oracle Linux
Monitor	Not required if NOC resident	Not required if NOC resident	Not required if NOC resident
RAM	32 GB Minimum Cache: 256 MB	32 GB Minimum Cache: Database/Application specific	32 GB Minimum Cache: Database/Application specific
File System	NTFS	NTFS	EXTFS
Third Party Software Requirements	Trellix Endpoint  MS WSUS	Trellix Endpoint  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 onsite, 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	RAID 5 Controller  Rack mounting rails if Data Center Resident	RAID 5 Controller  Rack mounting rails if Data Center Resident
Pre-Install Options	None	None	None
Storage and Backup	Rubrik (latest release)	Rubrik (latest release)	Rubrik (latest release)

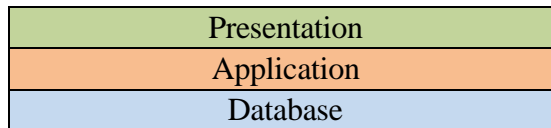
## DATABASE / APPLICATION SERVERS

COMPONENT	DATABASE 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	Intel Xeon 8352Y or greater	Intel Xeon 8352Y or greater	Intel Xeon 8352Y or greater	Intel Xeon 8352Y or greater
Network Interface Cards	Dual Ethernet 1000 Base-T  Dual 10 GbE	Dual Ethernet 1000 Base-T  Dual 10 GbE	Dual Ethernet 1000 Base-T  Dual 10 GbE	Dual Ethernet 1000 Base-T  Dual 10 GbE
Operating System(s)	Windows Server 2022 (or latest release)	Oracle Linux 8.x (or latest release)	Windows Server 2022 (or latest release)	Oracle Linux 8.x (or 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	EXTFS	NTFS	EXTFS
Third Party Software Requirements	Trellix Endpoint  MS WSUS		Trellix Endpoint  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	RAID 5 Controller  Rack mountable rails if NOC resident	RAID 5 Controller  Rack mountable rails if NOC resident	RAID 5 Controller  Rack mountable rails if NOC resident
Storage and Backup	Rubrik (latest release)	Rubrik (latest release)	Rubrik (latest release)	Rubrik (latest release)

## APPLICATION DEVELOPMENT

COMPONENT	*NIX	INTEL	INTERNET / NTRANET	GIS
Database Software	Oracle 12c (latest release) MySQL (latest release)	SQL Server 2022 (or latest release) Oracle 12c (or latest release) MySQL (latest version)	N/A	SQL Server 2022 (or latest release)
Application Development Frameworks	Java	.NET Framework (latest release) Java	.NET Framework (latest release) Java PHP	.NET Framework (latest release) ESRI
Virtualization	VMWare	VMWare	VMWare	VMWare
Software And Development Tools	N/A	Microsoft Visual Studio 2021 (or latest release)	Microsoft Visual Studio 2021 (or latest release)	ArcGIS 10 & Extensions (latest release) ArcGIS Server 10.1 or ArcPad Microsoft Visual Studio 2021 (or 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 2021 (or latest release)	MS Visio Professional 2021 (or latest release)	MS Visio Professional 2021 (or latest release)	MS Visio Professional 2021 (latest release)

All applications should be 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.



## PLATFORM ARCHITECTURE STANDARDS: ENTERPRISE SOLUTION PLATFORMS

PLATFORM	CURRENT STANDARDS
Report Writing: Departmental Reporting Needs	Crystal Reports Microsoft SQL Reporting
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	VMWare vCenter 7.0.3 or latest release Microsoft Systems Center Virtual Machine Manager 2016 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
<i>Dependent on Distance</i>	
62.5 / 125 OFNP multi-mode and single mode optical fiber.	
Between buildings - 12 pair single mode	
Between floors –6 pair single mode	

**WINNEBAGO COUNTY DATA COMMUNICATIONS STANDARDS**  
(Continued)

**NETWORK HARDWARE**

<b>ROUTING</b>
Aruba 6000 Family (Layer 3)
Palo Alto 5200 Family Firewalls

<b>SWITCHING</b>
Aruba 6000 Family – Core applications (MDF)
Aruba 6000 Family – Wire Closet (Medium to Large IDF)
Aruba 6300CX – 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.

<b>FIREWALLS/URL FILTERING</b>
Palo Alto 5200 Family

<b>VPN CLIENT CURRENT</b>
Palo Alto Global Protect VPN Client

<b>CONTENT SERVICES SWITCHING/LOAD BALANCING</b>
Fortinet FortiADC Family