

## Enterprise Architecture Technology Standards

### ***Our Vision***

*We will become the nation's model for delivery of technology, media, and contact center services for local government.*

## Purpose

This Enterprise Architecture Technology Standards document provides the City and County of Denver a framework to mature governance effectiveness and improve service delivery through technical standards.

All listed hardware and software specifications represent the City supported configurations for current and future environments (roughly 6 months).

If the service being proposed does not meet the technical specifications provided in this section, proposals may be submitted; however, a technology exception waiver must be applied for and granted by the Technology Services Leadership Team as a term and condition of the contract. If future compliance is planned (i.e., in a future release of the proposed software or system) please note that clearly in the waiver and in the proposal.

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## Section I. End User Devices

### 1-CCD-01 Desktop, Workstation and Laptop Hardware

The following specifications are based on the City's existing systems and represent the expected maximum hardware specification for a given class of hardware. These specifications serve as a reference for current and future hardware environment states.

Bid	2017 - Current						
	Basic PC	Advanced PC	Workstation PC	Standard Laptop	UltraBook	Workstation Laptop	Tablet
Hardware Class							
Intel Core i5-7500T, 2.7 GHz	•						
Intel Core i5-7500, 3.4 GHz	•						
Intel Core i7-7700, 3.6 GHz		•					
Intel Xeon Silver Dual-Core, 2.6 GHz			•				
Intel Core i5-7300U, 2.6 GHz				•			
Intel Core i7-7600U, 2.8 GHz					•		
Intel Core i7-7700HQ, 2.8 GHz						•	
Intel Core i5-7300U, 2.6 GHz							•
Intel Core i5-8350U Quad-Core, 1.7 GHz							•
RAM (GB)	8	8	16/32	8/16	8/16	16/32	8/16
AMD Radeon R5 430, 2GB, 730 MHz	•	•					
AMD Radeon R7 450, 2GB, 925 MHz		•					
Radeon PRO WX 5100, 8GB, 713 MHz			•				
Intel HD Graphics 620, integrated, 300 MHz				•	•		•
Intel UHD Graphics 620, integrated, 300 MHz							•
NVIDIA Quadro M1200, 4GB, 1093 MHz						•	

## 1-CCD-02 Device Software

The City and County of Denver installs and maintains a standard set of software on all desktops and laptops. All software that is acquired by the City and County of Denver must be compatible with the expected environment.

Software Type	Software Name	Technical Requirement
Operating System	Microsoft Windows	Win 7 Professional SP1 64-bit Win 10 Version 1703 and above
Browsers	Internet Explorer	Current Release
	Edge	Current Release
	Google Chrome	Current Release
Office Suite	Microsoft Office	0365 Office 2016
Software Framework	Microsoft .NET	Current Release
Java	JRE	Current Release
Adobe	Acrobat Reader	Current Release
	Flash Player	Current Release
	Shockwave	Current Release
Multimedia Framework	HTML 5	Current Release
External Drives	McAfee Encryption	Current Release

## 1-CCD-03 Mobile Devices

The City and County of Denver supports the following mobile devices. Any software that is intended to run on mobile devices should support the following specifications.

Device	Technical Requirement
iPhone	Current Release
iPad	Current Release
Android	Current Release

## 1-CCD-04 Special Purpose Devices

The following specifications represent the expected maximum hardware specification for that class of hardware.

### Denver Police Department

Hardware Class	Technical Requirement
Processor	Intel Core i5 2.0 GHz 3MB Cache
Memory/Storage	8 GB RAM 256 GB SSD
Display	10.1" WUXGA LED Backlighting Capacitive multi touch w Active Stylus Pen Sunlight Readable 800 Nits
Interface	RFID Reader (UHF 900MHz EPC Gen 2) Magstripe Reader Docking connector
Wireless	Wi-Fi 802.11a/b/g/n/ac Bluetooth v4.0 Integrated 4G LTE with GPS
Durability	MIL-STD-810G/IP65
Warranty	3 Year

## Section II. Infrastructure

### 2-CCD-01 Communications (Networks, Voice, Video)

Available by Consultation

### 2-CCD-02 Compute

Type	Name	Technical Requirement
Server Hardware	Cisco	UCS
	Oracle	PCA X5-2 Base Rack

### 2-CCD-03 Virtualization

Type	Name	Technical Requirement
Platform	VMWare	ESX 6.5.0
Client	VSphere client	6.5.0
Platform	Oracle VM	Current Release

### 2-CCD-04 Server Operating System

Type	Name	Technical Requirement
Microsoft	Server	2012 R2 & 2016
Linux	Red Hat	7
Linux	Oracle	7

### 2-CCD-05 Storage

Type	Name	Technical Requirement
Backup	CommVault	V11 SP8
File	EMC Isilon	OneFS 8.1.0.x
Block	EMC Xtreme IO	4.2.0

### 2-CCD-06 End User Device Management

Type	Name	Technical Requirement
Microsoft	System Center Configuration Manager	2012 R2 1803
IBM	BigFix	9.5

## Section III. Infrastructure Services

### 3-CCD-01 Enterprise Application Control

Type	Name	Technical Requirement
F5	Big IP	12

3-CCD-02 Domain services (DNS, DHCP, Active Directory)

Type	Name	Technical Requirement
Infoblox (DDI)	DNS	Dynamic DNS Static for Non –Windows Devices
	DHCP	IPAM Capable
Microsoft	Active Directory (legacy)	Windows Server 2012 R2 v.69
	Active Directory	Windows Server 2016 v.87

3-CCD-03 Identity management

Type	Name	Technical Requirement
Oracle Identity & Access Management	Oracle Identity Manager	11g R2 PS3
	Oracle Access Manager	11g R2 PS3
	Oracle Virtual Directory	11g R2 PS3
	Oracle Internet Directory	11.1.1.4.0

3-CCD-04 Data Center

Type	Name	Technical Requirement
Industry	Telecommunications Labeling	TIA-606-B
Industry	Telecommunications Infrastructure Standard for Data Centers	TIA-942-A

3-CCD-05 Event Monitoring

Type	Name	Technical Requirement
Open Source	Op5	Nagios compliant

## Section IV. Applications

### 4-CCD-01 Middleware

Type	Name	Technical Requirement
Microsoft	IIS	10.0
Oracle	WebLogic	12C
Apache	Tomcat	7.X
Oracle	IDM	12C
Oracle	ODI	12C
Oracle	OBIEE	12C
SAP	Crystal Reports	2013
SAP	BOE	4.2
Oracle	SOA	12C

### 4-CCD-02 Database

Type	Name	Technical Requirement
Microsoft	SQL Server	2016 & 2017
Oracle	Oracle	12C R2


### 4-CCD-03 GIS

Type	Name	Technical Requirement
ESRI	ArcGIS	10.4.1

### 4-CCD-04 9-1-1

Type	Name	Technical Requirement
Computer Aided Dispatch (CAD)	TriTech Software Systems	V 5.8.7
Voice Recording	Verint	V 5-SP3
Work Force Management (WFM)	Verint	V 15.1



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