

# City of Tampa

## Department of Technology and Innovation

### Information Technology Technical Catalog

**2009 Edition (Version 1.1)**

(Effective October 31, 2009)

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## Introduction

In 2007, the Technology and Innovation (T&I) leadership recognized the need to improve the business processes used to provide technology services to City departments and thereby indirectly to improve services for the Citizens. The Information Technology Infrastructure Library (ITIL) is an industry and government “best practice” methodology for service operations. T&I leadership has adopted the ITIL version 3 framework as the standard model for guiding how technology service operations will be performed.

The T&I department is chartered to design, acquire and operate IT services in order to provide value to the City departments business objectives. The process of providing those services is detailed in a set of four documents:

1. “Information Technology Policy and Governance,” which addresses policy and governance [ITIL 02-1 Policy & Governance]
2. “Information Technology Service Portfolio,” which provides a high-level description of the services offered by T&I and their associated value proposition to management [ITIL 02-2 Service Portfolio]
3. “Information Technology Catalog,” which provides a description of the services offered by T&I and operational support information to end users [ITIL 02-3 Catalog]
4. “Information Technology Technical Catalog,” which provides detailed technical information for use by T&I staff [ITIL 02-4 Technical Catalog]

This document is the fourth item in this list: the *Information Technology Technical Catalog*.

## Technical Processes

### **Server Provisioning Work Flow**

The need to provision new server hardware is triggered primarily by two events. The first event is the deployment of new software, which requires a dedicated server. The second event is triggered by the server reaching the end of its service life, which is five years for City equipment.

#### **Procedure**

- A. Server within 6 months of end of service life (5 years)
  - 1) Determine if a server can be virtualized, based on application performance requirements.
    - a) If the application uses an SQL database, do not virtualize
    - b) If the application must make a LAN connection to the DMZ (that is, to a network outside the firewall), do not virtualize
    - c) Otherwise, server virtualization is preferred
  - 2) If the replacement server can be virtualized
    - a) Determine the location of the virtualized guest (T&I or Communications Center)
    - b) Determine the capacity of the virtualized server
    - c) Determine the memory provisioning for the virtualized guest
    - d) Determine the LAN segment(s) to be utilized by server
    - e) Determine operating system
      - Non-Windows Operating System: an OS license must be purchased
      - Windows Operating System: licensing is provided by DataCenter Enterprise licensing; no additional licenses are needed
    - f) Convert physical hardware to a virtualized file system, using VMware Converter software
    - g) Test the virtualized replacement server on an isolated LAN segment
    - h) Upon successful testing of the application in the virtualized environment, shut down the original server hardware and start the virtualized replacement server on the production LAN segment
    - i) Turn over the new virtualized server to the application team.
    - j) Monitor guest OS resource usage on the VMware host server and tune the guest server resource allocation, as required
  - 3) If the replacement server cannot be virtualized
    - a) Determine the replacement server specifications, including memory, local disk, processor, LAN ports, HBA and SAN or iSCSI disk requirements
    - b) Determine the LAN segment(s) to be used by the server
    - c) Determine the location of the replacement server (T&I, Communications Center or GTE FCU)
    - d) Determine the funding source for the server hardware (T&I or Enterprise Department funding)
    - e) Obtain a price quote for the required configuration
    - f) Purchase an operating system license (state contract pricing)
    - g) Review the hardware configuration quote and order the hardware

- h) Meet with the application team to determine a replacement strategy and timeline
  - i) Upon arrival of replacement hardware, build the server using T&I's "Standard Windows Server Setup," perform other operating system installation and obtain third party installation assistance, if required
  - j) The application team installs the application on the replacement hardware
  - k) The application team tests the replacement server on an isolated LAN segment
  - l) Upon successful completion of testing by the application team, shut down the original server and bring the new server online on a production LAN segment
  - m) Turn over the new server to the application team
- B. New application requires separate server hardware
- 1) Determine if the server can be virtualized, based on application performance requirements
    - a) If the application uses an SQL database, do not virtualize
    - b) If the application must make a LAN connection to the DMZ (that is, to a network outside the firewall), do not virtualize
 Otherwise, server virtualization is preferred
  - 2) If the new server can be virtualized
    - a) Determine the location of the virtualized guest (T&I or Communications Center)
    - b) Determine the capacity of the virtualized server
    - c) Determine memory provisioning for the virtualized guest
    - d) Determine the LAN segment(s) to be used by the server
    - e) Determine operating system
      - Non-Windows Operating System: an OS license must be purchased
      - Windows Operating System: licensing is provided by DataCenter Enterprise licensing; no additional licenses are needed
    - f) Create the new virtual server using the existing server template that resides on the VMware host server or have the vendor install the guest operating system.
    - g) Connect the virtualized server to an isolated LAN segment
    - h) The application team or vendor installs the new application on the virtualized server
    - i) The application team tests the application on the virtualized server on the isolated LAN segment
    - j) Upon successful testing of the application in the virtualized environment, connect the server to the production LAN segment
    - k) Turn over the new virtualized server to the application team
    - l) Monitor guest OS resource usage on VMware host server and tune the guest server resource allocation, as required
  - 3) If the new server cannot be virtualized
    - a) Determine the server configuration based on application specifications, including memory, local disk, processor, LAN connections, HBA and SAN or iSCSI storage requirements
    - b) Determine the LAN segment(s) to be used by the server
    - c) Determine the location of the new server (T&I, Communications Center or GTE FCU)
    - d) Determine the funding source for the server hardware (T&I or Enterprise Department)

- e) Get price quote with required configuration items
- f) Purchase Operating System license using state contract pricing
- g) Review hardware configuration quote and order hardware
- h) Meet with application team to determine installation and testing strategy and timeline
- i) Upon arrival of server hardware, build the server using T&I's "Standard Windows Server Setup," perform other operating system installation and obtain third party installation assistance, if required
- j) The application team or vendor installs the application and tests on an isolated LAN segment
- k) Upon successful completion of testing by the application team, connect the server to the production LAN segment.
- l) Turn over the new server to the application team

### ***Storage Addition Work Flow***

The City's Storage Area Network (SAN) allows for on-demand expansion of storage resources for servers attached to this network. The need for storage expansion can arise for various reasons, including storage volume disk capacity falling below 10% on production servers, or new applications that require large data stores. The storage expansion process is similar for any of the City server operating systems that require additional capacity. These include Windows, NetWare and VMware operating systems.

#### **Procedure**

- A. Analyze configuration needs
  - 1) Determine size of additional capacity needed
  - 2) Determine performance characteristics required
  - 3) Determine need for fiber channel dual-pathing through switches
  - 4) Determine physical location of storage expansion (T&I or Communications Center array)
- B. Determine Costs
  - 1) Determine funding responsibility and options
  - 2) If capacity requirements dictate purchasing additional storage drives or SAN drive trays, obtain price quote(s)
  - 3) If a new server will be connected to the SAN as a result of this storage expansion, fiber HBAs for the server and switch ports must be funded
  - 4) Determine if the new storage will be backed up to tape (if backup required, backup licensing and tapes must be funded to cover annual backup and restore operations.)
- C. Deploy Storage
  - 1) Install new HBAs in the server, if required
  - 2) If existing capacity allows for NetWare or Windows server volume expansion using existing storage, and the server is already attached to the SAN, deploy the storage
  - 3) If new storage drives or trays were purchased to accommodate the request, install and deploy the storage
  - 4) After software installation and zoning actions are completed, log into the server and verify the new storage is visible
  - 5) Create/expand storage on the server, map a drive to the new storage and verify capacity

## Technical Services Offered (With Operating Level Agreements)

### ***Back-Office Technology Management***

Description	Operations, security, management, monitoring, software license management, connectivity and maintenance of back-office IT; manufacturer recommended data storage capacities are provided for each individual application
Effective Date	January 5, 2009
T&I Primary Contact	Eric Hayden
Scope	Technical support for office environment technology operations Includes: <ul style="list-style-type: none"> <li>• Mainframe</li> <li>• Servers</li> <li>• Routers</li> <li>• Network Switches</li> <li>• Storage Area Network</li> </ul>
Out of Scope (Exclusions)	Excludes: <ul style="list-style-type: none"> <li>• Telecommunication services provided by Verizon</li> </ul>
Key Metrics	<ul style="list-style-type: none"> <li>• Availability</li> <li>• Customer Satisfaction</li> <li>• Total Cost of Ownership (TCO)</li> </ul>
Agreed Service Times	<ul style="list-style-type: none"> <li>• Availability of mainframe environment: &gt; 98%</li> <li>• Availability of server environment: &gt; 98%</li> <li>• Availability of router environment: &gt; 98%</li> <li>• Availability of network switch environment: &gt; 98%</li> <li>• Technical review of contracts: 5 business days</li> <li>• The delivery of back-office technology not specified here will be defined by a project plan.</li> </ul>

#### **Availability**

The network and servers are available with a 99.99% uptime. This calculation does not include the scheduled maintenance windows.

#### **Maintenance Windows:**

Daily: Mon through Fri – 5:00 AM to 6:30 AM (for standard and minor changes only)

Weekly: Sun – 12:01 AM to 10:00 AM (major and project changes only)

Any extended outages will be coordinated with all affected customers in advance

## Information Assurance

Description	Protect and defend information and information systems by ensuring confidentiality, integrity, authentication, availability and non-repudiation
Effective Date	January 5, 2009
T&I Primary Contact	Martin Zinaich
Scope	Includes <ul style="list-style-type: none"> <li>• Identity management</li> <li>• Access management</li> <li>• Remote connectivity</li> <li>• Threat assessment</li> <li>• System protection</li> <li>• Application security</li> <li>• Policy development</li> <li>• Information security education</li> <li>• Information security governance</li> <li>• Oversight of network connections</li> <li>• Forensic analysis</li> </ul>
Out of Scope (Exclusions)	Excludes: <ul style="list-style-type: none"> <li>•</li> </ul>
Key Metrics	<ul style="list-style-type: none"> <li>• % Workstations covered by end-point security</li> <li>• % Hosts not to policy patch levels</li> <li>• % Business critical systems under active monitoring</li> <li>• Vulnerabilities per host</li> <li>• Spam detected / filtered</li> <li>• Spyware / Viruses detected</li> <li>• Firewall rule changes</li> <li>• Inbound / Outbound connections</li> <li>• New employees completing security awareness training</li> <li>• Existing employees completing refresher training</li> <li>• Access security (disabled accounts, enabled accounts, cycle time to remove old accounts)</li> <li>• % Security compliance reviews with material weakness</li> </ul>
Agreed Service Times	<ul style="list-style-type: none"> <li>• Availability of email: &gt; 98%</li> <li>• Availability of Internet access: &gt; 98%</li> <li>• Availability of VPN: &gt; 98%</li> </ul>

## Technical Service Catalog Applications & Tools

### **Commercial Technical Service Tools Supported by T&I**

.NET Application Development/  
Deployment Environment  
Access (Microsoft)  
Active Directory Services (Microsoft)  
ADS/O Migration Utility (PIR Group)  
AIX (IBM)  
Apache (Apache Software Foundation)  
AS400 Productivity Tools (TAA Tools)  
Attachmate (Attachmate)  
Automate (Network Automation)  
Bender (SMT Industries)  
Border Manager (Novell)  
Business Objects (Crystal) (SAP Business  
Objects)  
Byte Converter  
C# (Microsoft)  
CICS CEMT (IBM)  
CICS/Hotprint (IBM)  
CICS/TS (IBM)  
Cisco 3030 VPN (Cisco)  
Cisco Fabric Manager (Cisco)  
Cisco Secure (Cisco)  
Cisco Works (Cisco)  
COBOL  
CommVault (CommVault)  
Comparex (Serena)  
Computer Management Console  
CONTROL-M (BMC)  
CruiseControl (open source)  
Datesim (Computer Associates)  
DBOL (ASG)  
DFSORT (IBM)  
DP1 Server Software (DP1)  
Easytrieve Plus (Computer Associates)  
Enterprise Manager (Microsoft)  
ET (ET Software)  
FabricView (Brocade)  
Fault Analyzer  
FCIC Datamaxx (Datamaxx Applied  
Technologies)  
FDR/ABR (Innovation Data Processing)  
FDR/CPK (Innovation Data Processing)  
FDR/REORG (Innovation Data  
Processing)  
FDR/SAR (Innovation Data Processing)  
FDR/UPSTREAM (Innovation Data  
Processing)  
File Manager (IBM)  
Firefox (Mozilla)  
Florida Interoperability Network  
FME (Safe Software)  
FME for Oracle (Safe Software)  
FrontPage (Microsoft)  
Google Earth Enterprise (Google)  
GWIAA (Novell)  
IBM Extended Facilities Product (IXFP)  
(IBM)  
Idera Diagnostic Manager (Idera)  
Idera Toolbelt (Idera)  
IDMS (Computer Associates)  
IDMS ADSO (Computer Associates)  
IDMS Core (Computer Associates)  
IDMS OLQ (Computer Associates)  
IDMS Tools (Computer Associates)  
IDMS UCF (Computer Associates)  
Informatica (Informatica)  
Informix (IBM)  
Internet Explorer (Microsoft)  
Interrest (Computer Associates)  
IPSentry (IPSentry)  
JES Queue for Printers (JQP)  
(MacKinney)  
L3 Server Software (L3)  
Laderman Migrator  
LEADS  
Log Explorer (Lumigent)  
Maint/Star  
Management Studio (Microsoft)  
Mantissa (Mantissa)  
MapBasic (Pitney Bowes)  
MapInfo Runtime (Pitney Bowes)  
MetaFrame (Citrix)  
Munsys Archive (Munsys)  
Munsys Management Console (Munsys)  
Munsys Monitor (Munsys)  
Navisphere (EMC)  
Netware (Novell)  
Netware Directory Services (Novell)  
Oasis (Oasis Software)

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Odds/MVS (Software Engineering of America)	SQL Diagnostic Manager (Microsoft)
Oracle Database Configuration Assistant	SQL Query Analyzer (Microsoft)
Oracle DBMS (Oracle)	SQL Server (Microsoft)
Oracle Enterprise Manager (Oracle)	SQL Server Configuration Manager (Microsoft)
Oracle Net Manager	SUSE LINUX (Novell)
Oracle RMAN (oracle)	Syncsort (Syncsort)
Oracle Universal Installer (Oracle)	Systat (Systat Software)
Orion (SolarWinds)	System Architect (Telelogic)
OS/400 DB (IBM)	System Display and Search Facility (SDSF) (IBM)
OziExplorer (Share It)	TampaGov Emergency Alerts
Password Generator (PC Tools)	TampaGov Related Links
PerfectDisk (Raxco)	TampaGov Rotating Image Control
Performance Essential (Softworks EMC)	TampaGov Search (Google Mini)
Powermart4 (Informatica Software)	Toad for Oracle (Quest Software)
PowerTCP (Dart Communications)	ViceVersa Pro (TGRMN Software)
Progen (BCD)	Visual Basic (Microsoft)
PSP/VIO (Softworks)	Visual Source Safe (Microsoft)
PuTTY (freeware)	Visual Studio (Microsoft)
RealVNC (RealVNC)	VMware (VMware)
RedGate Backup (RedGate)	VTAM Virtual Print (VVP) (IBM)
RedGate SQL Compare (RedGate)	VV Engine (TGRMN Software)
Remote Console (Dell)	Web Access Agent (WAA) (Novell)
Remote Operating System Conversational Online Environment (Roscoe) (Computer Associates)	Websphere (IBM)
Resource Access Control Facility (RACF) (IBM)	Windows 2003 Server (Microsoft)
Resource Measurement Facility (RMF) (IBM)	Windows 2008 Server (Microsoft)
Robo-FTP (Robo-FTP)	Windows Media Encoder (Microsoft)
SANtricity (Engenio)	Windows Media Services (Microsoft)
SimpleDNS (SimpleDNS)	Windows XP (Microsoft)
SolarWinds (SolarWinds)	WinMerge (open source)
Source Safe (Microsoft)	Xchange (Optima Technology)
SQL Business Intelligence Development Studio (Microsoft)	z/OS (IBM)
	ZARA (Altai Software)
	ZEKE (ASG Software Solutions)
	ZENworks (Novell)

### ***Hosted Technical Service Tools (Software as a Service)***

Alerta (Alerta)

### ***Technical Service Tools Not Supported by T&I***

Exchange (Microsoft)

Sharepoint (Microsoft)

Palm Desktop (Palm)

### ***Technical Tools Not Authorized or Permitted***

Any technical tools that have not been pre-approved by T&I (or the T&I Security office) are prohibited. Additional information regarding hardware authorization policies is available at [http://inet/dept\\_MIS/documents/computing\\_policies\\_and\\_procedures/index.asp](http://inet/dept_MIS/documents/computing_policies_and_procedures/index.asp)

## Technical Service Catalog Hardware Configurations

T&I supports basic hardware configurations for servers, storage area networks, web services, routers and data switches. It is T&I policy to acquire and deploy standard configurations for citywide use unless specific, approved business requirements cannot be accommodated without specialized or customized configurations. Standard configurations are published at:

[http://wwwdev.cot.gov/dept\\_technology\\_and\\_innovation/information\\_resources/](http://wwwdev.cot.gov/dept_technology_and_innovation/information_resources/)

### **Server Maintenance Procedures**

Servers supported by the City require periodic updates to the hardware and operating systems. Maintenance of these servers shall be accomplished as specified in this document. Server operating systems supported by City personnel include LINUX, UNIX, Novell, and Windows. Maintenance procedures for these servers can be broken down into two categories, hardware and Operating System (OS). The hardware update procedures, which include BIOS and firmware updates, are accomplished in a similar manner for systems running on Intel-based chipsets (Dell servers). UNIX systems running on IBM servers (AS400) require separate hardware update procedures. Operating System update procedures are unique for each product.

Deployment of Windows Security patches and updates will be done using Ecora Patch Manager. This utility automates patch deployment, and stores the patch history for each server in a database that can be used to produce detailed reports. NetWare, UNIX, and LINUX service packs will be downloaded from the respective vendor and manually applied. Firmware and BIOS updates will be downloaded from Dell and IBM, and manually applied per vendor instructions.

### **Frequency of Updates**

Type of Update	Frequency			
OS	Windows	NetWare	LINUX	UNIX
OS Security Patches, Service Packs	Bi-weekly	As recommended by Novell or as required by application	As required by application	As recommended by IBM or as required by application
Hardware	Dell	Dell	Dell	IBM (AS400)
BIOS and Firmware	Annual	Annual	Annual	As required by OS
Disk Maintenance	Semi-annual disk defrag	Monthly file purge	Annual disk audit	Quarterly disk audit