UKG TeleStaff Technical Overview

Built on the right architecture for you

The UKG TeleStaff™ solution is a proven automated scheduling solution that organizations rely on to achieve their scheduling and workforce management goals. Linked with other UKG™ (Ultimate Kronos Group) solutions, such as UKG Ready™ and UKG Dimensions™, the UKG TeleStaff solution optimizes the scheduling, communications, and deployment of public safety personnel.

While UKG TeleStaff is designed to help users improve their scheduling efforts — and results — it is also built on a flexible yet powerful architecture that IT departments will appreciate. With powerful functionality to support vertical and horizontal scalability, failover, clustering, and load balancing, UKG TeleStaff delivers an effective solution that is easy to install, maintain, and own.

A flexible, powerful architecture

UKG TeleStaff is a 100 percent web-based solution that works in any HTML5-enabled web browser. No browser plug-ins or add-ons are required to use the application, which simplifies deployment and support complexities. This flexible architecture allows organizations to segregate system functions across multiple servers, including load balancing, task scheduling, data caching, and database access.

UKG TeleStaff utilizes Microsoft SQL Server as the database engine. Additionally, the interactive voice recognition component of UKG TeleStaff uses the Aspect Prophecy on-premises or Aspect Prophecy cloud-hosted deployment platforms.

Maximum uptime and performance

To provide high availability and scalability for maximum uptime and application performance, UKG TeleStaff permits application servers to be replicated or load-balanced across multiple hosts. The 64-bit architecture enables the full use of memory beyond the 32-bit restrictions so organizations can scale up and/or out, depending on their specific requirements.

UKG TeleStaff is predominantly a database-read solution where logic is performed at the application level, which keeps database utilization as low as possible for increased application speed and performance. While the application is a proprietary solution, the database is not — a distinction that enables organizations to maintain their own databases and access data using standard SQL queries.

Key Benefits

- **Provides** a flexible yet powerful architecture
- **Meets** IT's requirements for a highly available and easy-to-maintain application
- **Supports** vertical and horizontal scalability, failover, clustering, and load balancing
- **Helps** optimize the scheduling, communications, and deployment of public safety personnel

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Multi-tiered architecture

UKG TeleStaff solutions are designed using a multi-tiered application architecture that supports rapid deployment and effective integration of the application within a customer's existing IT infrastructure. Production and test environments cannot share a single container and will need separate containers for the environments (physical host or virtual machine) but environments can share a single database server with multiple databases assuming your network security policy allows this type of configuration.

Client: Users access the system via a standard HTML browser. No plug-ins or add-ons are required for system access.

Application: The application contains the following key components:

- The web server, which contains the static content and serves browser requests that are passed to UKG TeleStaff

- The application server, which executes the application logic and displays the dynamic content

- The messaging server, which integrates application components and provides the backbone for scalability

- The caching server, which optimizes response times by maintaining frequently used information to support high availability and reduce database queries

Database: Within the database, the database server efficiently stores and retrieves all application data. The user's specific database configuration is based on several variables, including the number of employee records, the number of clients, and the configuration of the storage subsystem.

Security

UKG recognizes the importance of safeguarding the information in the workforce management solution. UKG TeleStaff supports LDAP and Active Domain registries for password authentication and centralized password management. SSL communication is required.

UKG TeleStaff enforces the concept of "no privileges until assigned," which means that users cannot access system data or functions until access is explicitly granted to them. User access rights are defined in UKG TeleStaff access control profiles.

Authentication	Authorization
• Authentication identifies users based on factors such as username and password	• Once a user is identified, the authorization function creates a user session containing privileges provided by role-based profile assignments
• The authentication function supports LDAP, Active Directory, and the UKG TeleStaff database	• Profiles manage data access, including which employees a specific user can access and the types of data and editing available
• Each user can be configured with a different authentication authority	• The user's navigation is automatically generated based on his or her access privileges

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High-level overview of UKG TeleStaff architecture

UKG TeleStaff is an HTML5 browser application that is independent from the operating system platform. It supports popular MS SQL database technology, offers an IVR platform, and is deployable in the UKG private cloud for maximum flexibility or on premises within a customer's environment.

UKG TeleStaff modules

The following modules are part of UKG TeleStaff and may be implemented over time based on the overall implementation schedule.

- Contact Manager: Routes messages to the appropriate message delivery module. Contact Manager also ensures that messages are sent out in the priority of order received from UKG TeleStaff.

- Line Manager: Controls each logical line in the IVR system.

- Email Manager: Sends employee emails from UKG TeleStaff using standard SMTP protocols.

- Task Manager: Automatically initiates predefined tasks that execute certain functions within UKG TeleStaff, helping to alleviate repetitive tasks for staffers and system administrators. The following is a sample list of these tasks:
  - Auto-Alarm: Notifies roster alarms for user-defined dates, shifts, and regions.
  - Auto-Approve: Approves work code requests on the roster. Once activated, the Task Manager builds a roster day and counts the number of user leave requests, validates against the number of approved leave requests, and approves them in accordance with organizational policies.
  - Auto-Assign: Fills new vacancies on the roster in accordance with the organization's policies and procedures.
  - Auto-Finalize: Finalizes the roster in preparation for reporting and payroll.
  - Auto-Hire: Offers work opportunities and automatically commits employees to the work.
  - Auto-Notify: Sends notifications to users via the workstation, outbound phones, and internet.
  - Email Reports: Emails user-defined reports to a user-defined email address.
  - Payroll Export: Exports scheduling data into XML and CSV formats for dynamic data ranges and feeds scheduling data to payroll systems.
  - Gateway Manager: Exports scheduling data in XML and CSV formats for dynamic date ranges and sends roster and personnel data to CAD, RMS, and HR systems.
  - Penalty: Manages any scheduling penalties assigned to staff for expired offers.
- UKG TeleStaff Import Manager: Imports initial employee and scheduling information using CSV file format.

UKG TeleStaff delivers a flexible yet powerful architecture that enables today's public safety organizations to deliver specialized scheduling functionality while still meeting IT's requirements for a highly available, highly scalable, and easy-to-maintain scheduling application.

UKG TeleStaff supported environments as of UKG TeleStaff 7.4.0

Supported technologies listed exclude any and all versions and technologies that are no longer being sported by their respective vendors.

Application server O/S[1]

- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

Databases[2]

- Microsoft SQL Server 2014 SP2
- Microsoft SQL Server 2016 SP1
- Microsoft SQL Server 2017
- Microsoft SQL Server 2019

Browsers (HTML5)[3]

- Safari 8+
- Chrome 47+
- Firefox 27+
- Microsoft Edge

Mobile/tablet[3]

- Safari for iOS
- Chrome for Android

Web server

- Apache Tomcat (with Web server supporting both HTTP and HTTP/S [SSL] communications)

IVR/telephony

- Aspect Prophecy (on-premises IVR) or Aspect Prophecy cloud-hosted IVR
- Aspect Prophecy 18
- Aspect Prophecy 19

Application containers

- Apache Tomcat 8.5

Short Message Service (SMS)

- Twillio, a cloud communications platform, is the single provider

Virtualization

- VMware 5.5 or greater
- Microsoft Hyper-V

Configurations supported

- HTTP Connectors
  - SSL/TLS (default)4
  - HTTP (for redirection to SSL only)
- Sessions
  - Secure + HTTP-Only Cookies (default)
- JavaScript (Required)
- No Required Plug-Ins (Flash, ActiveX, Java, etc.)

Authentication mechanisms

- Kerberos
- LDAPv3 (simple)
- Application (default)
- SAML 2.0

Peripherals/software and hardware licensing

- Microsoft SQL Server
- Aspect Prophecy (on-premises IVR) or Aspect Prophecy (cloud-hosted IVR)

UKG TeleStaff sizing for on-premises customers

Sizing assumptions

The following assumptions were applied when sizing each of the different environments: These are UKG TeleStaff-specific configurations. Data sizing is based on typical use for a seven-year period. More frequent imports, rotations, tasks, staffing, and edits triggering audits will result in higher data growth rates.

Days in roster view: 1

Employee per institutions: ≤ 1,000

Employee/staffer ratio: 10:1

Peak 100% on-duty staffers logged in

Peak 5% end users logged in

Peak change concurrency 1.5% (15 per 1,000)

Peak change ratio 5%/institution/day (50 per 1,000) Fill-By Rules: First List

Task schedule/frequency:

- Auto-Hire — Daily
- Auto-Fix — Daily
- Auto-Finalize — Daily
- Auto-Assign — Daily
- Auto-Approve — Daily
- Auto-Notify — Daily

SSL termination occurs at application

Session replication disabled in multi-node configurations

Clustered cache enabled via JMS and Multicast

Java heap = total RAM less 3G concurrent IVR ports:

- 4-port per 1,000 (maximum of 20 ports)

Daily schedule export (1/institution) Specification based on AMD 2356 2.3 GHz cores

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[1] For Canadian organizations, the operating system must be installed with English (U.S.) in Regional Settings.

Additionally, the Windows Server Operating System must have the region and language settings selected as English (U.S.) on any servers hosting Workforce TeleStaff.

[2] Microsoft offer multiple licensing model for SQL work with your DBA. IT team or Microsoft representative to determine the best license for your organization.

[3] UKG TeleStaff supports the vendor's current version and the most recent previous version.

[4] The customer organization must provide SSL certificate. The self-signed certificate provided with installation is not acceptable for production use.

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Technical specifications

Environment standards

The specifications are based on rules and configuration complexities as listed below. These specification are based on the variables shown below. Please note that the following can impact system performance and user experience: complex rules, complex configuration, exceeding the recommended employee count per institution.

- <1,000 users per institution
  - Environments with more than 1,000 users per institution may require greater system resources for both the application servers as well as users' systems. User device specifications, browser versions, and network throughput can impact page performance when the amount of data to display is large.
- 2 list plans
- 5 list chains
- 11 lists (most expensive has approximately 120 processing points)
- 11 list targets (most expensive has approximately 60 processing points)
- No rules-based dynamic issue

Employees	< 1,000	< 2,500		< 5,000		< 10,000	
	S1: Application Server	S1, S2: Application Server	S3: Database	S1, S2, S3, S4: Application Server	S5: Database	S1, S2, S3, S4: Application Server	S5: Database
RAM	16G, 2G for Database	24G	16G	32G	32G	48G	32G
CPU	8 CORE				6 CORE	8 CORE	6 CORE
OS Volume	Customer standard (minimum 50G recommended)					0 to 5,000	
Swap Volume	> Total RAM					0 to 5,000	
Application Volume	10G	10G		20G		20G	
Database Data Volume	10G		10G		20G		60G
Database Log Volume	5G		5G		10G		40G

≥ 5,000 Custom Configuration

Usually, with over 5,000 employees, the configuration of tasks run and the integrations become more complex and CPU-intensive. Allocating separate systems to control activities such as task management becomes critical as the load of tasks can start to impact user experience.

Hardware platforms

The UKG TeleStaff application can run in physical and virtual environments. Capacity requirements are independent of deployment platform.

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