## Time and Labor Technical Data Sheet

Kronos Workforce Central labor management solutions constitute a web-based enterprise suite of applications designed to maximize workforce productivity while minimizing the impact on IT. The advantage of the product platform lies in its ability to match the needs of the users with a broad range of employee interaction devices: Web browsers, data collection terminals, biometrics, telephony, personal digital assistants (PDAs), and more.
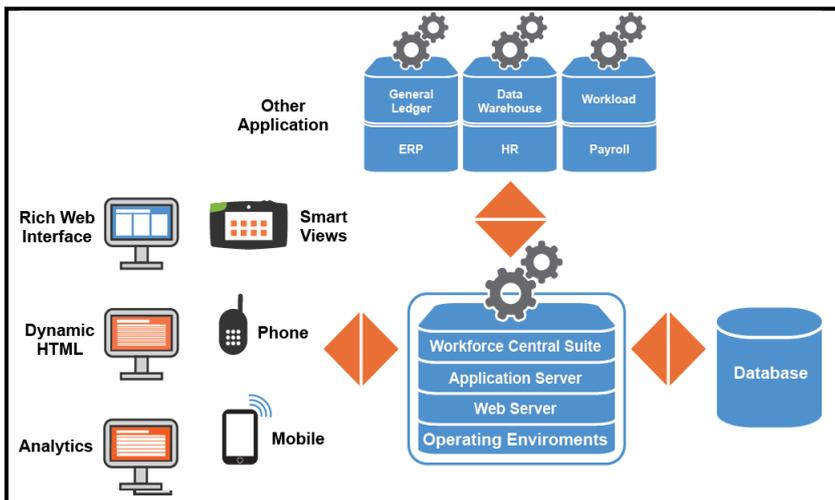
### Platform portability

The Workforce Central labor management architecture follows an industry-standard model using the Java 2 Enterprise Edition (J2EE) for Web applications to provide an extensive set of scalable platform options to customers. The J2EE platform enables the application to run on a broad set of operating systems and application servers. This open and portable approach to application development is also apparent in the supported database products, Microsoft SQL Server and Oracle.

### Three-tier architecture

From an IT perspective, Kronos' labor management solutions are structured in three-tier application architecture. This architecture unlocks the real power of the Kronos solution, to be deployed quickly and integrated cost-effectively within an existing IT infrastructure.

Client tier: In the client tier, customers have access to multiple types of interfaces to interact with Kronos applications. Based on the role of the users, Kronos provides access via telephony, PDAs, data terminals (including SmartViews), dynamic html, rich web interfaces (Ajax, Flash, java applets), and portals that leverage the most suitable technology to meet users' specific needs. Web pages and applets connect to the Web-based Workforce Central Application Server.

**Application tier:** The J2EE application server implements the major parts of the application, including the application logic, performing the real work of the application. The Web server resides on this tier, awaiting browser requests that are passed to Workforce Central. The application tier also includes a business rules engine Web service that optimizes the application server by offloading computationally intensive work for faster response. At the heart of this Web service is the Workforce Totalizer, a robust rules engine designed around an object-oriented model. The Workforce Totalizer executes the Workforce Central business rules in real time. The advantage to this approach is its ability to provide payroll managers and supervisors with real-time calculated data to support decision making and data modeling.

The technology details contained in this document describe the following products in the Kronos® Workforce Central® suite:

Workforce Timekeeper® 7
Workforce Employee™ 7
Workforce Manager™ 7
Workforce Accruals® 7
Workforce Scheduler™ 7
Workforce Absence Manager™ 7
Workforce Activities™ 7
Kronos Touch ID™ Software
Workforce Integration Manager™ 7
Workforce Record Manager™ 7
Workforce Device Manager™ 7
Workforce Forecast Manager™ 7
Workforce Operations Planner™ 7



**Database tier:** The database server efficiently stores and retrieves all application data. The database configuration has many dependencies, including the number of employee records in the database, the number of clients, the number of pay periods to be stored, and configuration of the storage subsystem.

## Data collection and self-service

Workforce Central supports four general categories of users: administrators charged with configuration and setup, employees, frontline managers who directly manage employees and human resource and payroll specialists who centrally manage the corporate payroll and pay policies. Managers and specialists have very similar requirements; they are the real power users of a labor management application.

Considering the makeup of today's workforce, labor management applications must leverage the most appropriate technology to deliver a user interface equipped to meet the individual needs and work style of the user. A web-based technology approach provides a strong foundation for this degree of flexibility, but a closer look at the needs of the user often reveals more complex requirements. The distinct advantage of Kronos architecture is its ability to match the right technology approach with the usage model for each type of user and the strengths of a wide range of interaction devices.

For self-service employees who will be entering time and attendance data and checking their leave balances, a Web browser is all that is required for access. To protect the privacy of an employee's data and to increase the overall security of the solution, these connections to the Web server can be configured to use either the HTTP or the HTTPS protocol. The HTTPS protocol uses the Secure Sockets Layer (SSL) cryptographic protocol. Connections over HTTPS use encryption and require a server certificate from VeriSign or another certificate authority.

Managers and payroll specialists responsible for the time and attendance records of large numbers of employees need a highly interactive, rich user interface that doesn't slow them down. To meet these needs, the Kronos solution utilizes Java applets. Applets are downloaded only once when first accessed and run in the Sun™ Java runtime environment™ (JRE) plug-in. Only those Java applets necessary to perform the tasks associated with a particular user role are downloaded to the client. As a result, very small packets of actual data are being transmitted, keeping the bandwidth requirements for the Workforce Central application very low. Most users of the application can take advantage of a pure HTML deployment designed for self-service access.

## Workforce Mobile

The Kronos® Workforce Mobile™ solution gives you a mobile connection to your Workforce Central® system. This means your workforce can complete common administrative tasks right on their mobile devices. Wherever managers are, they can easily see and rapidly respond to potential workforce management issues via Workforce Mobile Manager, through Workforce Mobile Employee, employees can perform their time management tasks when they need to, where they need to.

This on-the-go access means your workforce is able to instantly engage, make effective decisions, take action, and move on. It's mobile workforce management. And it will fundamentally

## Workforce Tablet

The Kronos® Workforce Tablet™ solution provides managers with constant mobile access to their Workforce Central® system — all through the simple, convenient, and compelling user experience offered by today's tablet devices.1 With the combined capabilities of Workforce Tablet and Apple® iPad® capabilities, Kronos delivers the power of a back-office PC to managers who don't work in the back office. Managers can easily record and access real-time labor data and streamline decision making by staying constantly connected to Workforce Central.

On-the-go access allows managers to maximize productivity for themselves and your employees by making critical workforce management decisions instantly — from the shop floor, across the building, or when traveling.

## Workforce Analytics

Workforce Analytics products allow customers to solve vital workforce problems using strategic information delivery. Workforce Analytics gives an aggregate view of the workforce, allowing executives and managers to find the departments and facilities that are using best practices and those that need to improve. They can monitor the progress of the whole organization toward goals and find and redirect groups that are not meeting targets. Through the calculation of over one hundred key workforce metrics, Workforce Analytics transforms operational data into strategic intelligence.

## Security of confidential data

Workforce Central supports LDAP and Microsoft Active Directory for password authentication for organizations to centralize the maintenance of passwords. And, to facilitate controlled access via once-per-session authentication, Workforce Central supports single sign-on capability for both SiteMinder® and SAML enabled environments. To reduce the impact on help desks, Kronos provides automated password reset. Workforce Central also supports SSL for added security at the customer's option. User access rights are defined in the Workforce Central access control profiles.

## Integration with existing infrastructure

Kronos offers tools to support integration with critical business systems such as payroll, HR, patient information systems, and other back-office applications. Certified interfaces to major ERP systems, such as SAP, facilitate connections to existing data sources and repositories, further improving the return on investment.

The flexible and configurable Workforce Integration Manager™ integration tool contains components for interface processing and interface development. Workforce Integration Manager uses industry-standard technologies to import data from a variety of sources, files, and tables and to output data into many different file formats or directly to other relational database management systems. Batch transfer of tables from HR or payroll systems can be accomplished by using table-based import utilities provided within the Workforce Central applications. Workforce Integration Manager Interfaces help expand the use of your labor management data by making it accessible to other applications in the formats they require.

## Extensibility support with XML API toolkit

Enterprise organizations desire tight integration with critical business applications resulting in data synchronization. Other organizations may require adherence to customer-specific user-interface standards. The SOAP-based XML API delivers this flexibility through views of business objects to facilitate the extension of business rules and validation of data. This open user interface supports unique customer needs while protecting the application integrity through a stable, reliable interface.

## System administration

Workforce Central provides a number of capabilities for busy IT managers to perform system administration functions anytime and anywhere, a distinct advantage when their business takes them away from their primary locations. System administrators are pushed automatic notifications if scheduled events or servers fail. System performance metrics, such as active users logged on, can be monitored remotely, and system tasks and events can be scheduled at a convenient time when system usage is low. System status instrumentation, health data, and performance assessment data are provided for easy integration into leading monitoring and management applications.

## VMware and Microsoft Hyper-V virtualization

Most Workforce Central 7 applications can be run on VMware® and Microsoft Hyper-V® virtual machines. Virtualization is a software technology that makes it possible to run multiple operating systems and applications on the same computer at the same time, increasing hardware utilization and flexibility. By using virtualization software, an IT department can transform, or "virtualize", the hardware resources of an x86-based computer — including the CPU, RAM, hard disk, and network controller — to create several fully functional virtual machines that can each run its own operating system and applications just like a real computer. (Note: Workforce Analytics™ products are not supported on virtualized environments.)

## Workforce Worksheets

You can access Workforce Genie® data and a of number of Workforce Central data reports from Microsoft Excel® 2007 or 2010 by using the Workforce Worksheet plug-in.

## Supported technology

| Desktop requirements | | | | | |
|---|---|---|---|---|---|
| Browser | | | Operating System | | |
| Vendor | Product | Version | Vendor | Product | Version |
| Microsoft | Internet Explorer (IE) 32-bit | 8, 9, and 10 | Microsoft | Windows 8 - 64-bit | |
| | | | | Windows 7 - 32-bit and 64-bit | |
| | | | | Windows XP - 32-bit | SP2 |
| | | | | Windows Server 2008 - 64-bit only | |
| Mozilla | Firefox | Version 15 or higher | | Windows Server 2008 R2 - 64 bit | |
| Apple ✦ | Safari | 6 | Apple | Mac OS-X 10.8 | |

Note: For Safari browser/OS X clients, JRE is provided by Oracle
Firefox does not support HRMS Admin

| | |
|---|---|
| CPU | Intel-based Pentium III 1 GHz or greater; 2 GHz recommended |
| RAM | 2GB minimum (required for Navigator framework) |
| Cache | 256KB/L2 recommended |
| Display | 1,024 x 768 with 256 Color Recommended |
| Network Protocol | HTTP or HTTPS |
| Network Bandwidth | LAN Connection: Gigabit network recommended WAN Connection: Fractional T1 or T1-T3 |
| Hard Disk Space | 100 MB |

Workforce Timekeeper v7 requires Cookies to be enabled and Active-X controls must be permitted.

| Next Generation User Interface | | | |
|---|---|---|---|
| **Vendor** | **Product** | **Version** | **Operating System** |
| Adobe | Flash | 11.1+ | Same as supported Browsers |

*Only required if Next Generation User Interface used.*

| Java Plug-in | | | |
|---|---|---|---|
| **Vendor** | **Product** | **Version** | **Operating System** |
| Oracle | Java Plug-in (JRE) | Supports JRE 1.7 Family with a minimum of JRE 1.7.0_21 (ships with product) | Same as supported Browsers |

| Mobile | |
|---|---|
| **Device type** | **Platform** |
| Apple | iOS 3.1 & up (iPhone)<br>iOS 3.1.1 & up (iPod touch)<br>iOS 4.2 & up (iPad) |
| Android | OS 2.x & up |
| BlackBerry | OS 4.5.0 & up<br>OS 4.6.0 & up<br>OS 5.0.0 & up<br>OS 6.0.0 & up |
| Nokia | Series 40 3rd Edition & up<br>Series 40 5th Edition & up<br>Series 60 3rd Edition Feature Pack 1 & up<br>Series 60 5th Edition & up |

| Tablet | |
|---|---|
| **Device type** | **Platform** |
| Apple | iOS 5.1 up (iPad) |

| Server Virtualization | | |
|---|---|---|
| **Vendor** | **Product** | **Operating System** |
| Microsoft | Hyper-V | Microsoft Windows Server 2008 R2 |
| VMware | VSphere v5+<br>ESXi Hypervisor v4.1+ | Microsoft Windows Server 2008 – 64 Bit<br>Microsoft Windows Server 2008 R2 – 64 Bit |

| Desktop Virtualization | | | |
|---|---|---|---|
| **Citrix Version** | **Platform Operating System** | **Citrix Version** | **Platform Operating System** |
| XenApp v5 | Microsoft Windows 2008 Server | XenApp v6 | Microsoft Windows 2008 Server 64-Bit |
| | | XenApp v6 | Microsoft Windows 2008 R2 Server 64-Bit |

*Microsoft Terminal Server is also supported.*

| Web Server | | | | Operating System | | |
|---|---|---|---|---|---|---|
| **Vendor** | **Product** | **Version** | | **Vendor** | **Product** | **Version** |
| Microsoft | IIS | V7.0 | | Microsoft | Windows Server 2008 - 64-bit | |
| | | V 7.5 | | | Windows Server 2008 R2 - 64 bit | |
| Apache ✦ | Web Server | v2.4.3 | | Microsoft | Windows Server 2008 - 64-bit | |
| | | | | | Windows Server 2008 R2 - 64 bit | |
| | | | | Oracle/Sun | Solaris (SPARC) | 10 & 11 |
| | | | | Novell | SUSE Linux Enterprise | 11 |
| | | | | IBM | AIX (pSeries) | 6.1 & 7.1 |

| Application Server | | | Operating System | | |
|---|---|---|---|---|---|
| **Vendor** | **Product** | **Version** | **Vendor** | **Product** | **Version** |
| JBoss | EWP | V5.1 | Microsoft | Windows Server 2008 - 64-bit | |
| | | | | Windows Server 2008 R2 - 64 bit | |
| | | | Oracle/Sun ✦ | Solaris (SPARC) | 10 & 11 |
| | | | Novell ✦ | SUSE Enterprise Linux | 11 |
| | | | IBM ✦ | AIX (pSeries) | 6.1 & 7.1 |

| Application Server Workforce Analytics | | | Operating System | | |
|---|---|---|---|---|---|
| **Vendor** | **Product** | **Version** | **Vendor** | **Product** | **Version** |
| Apache | Tomcat | v6.0.32 | Microsoft | Windows Server 2008 - 64-bit | |
| MicroStrategy | MicroStrategy | v9.2.1 | | Windows Server 2008 R2 - 64 bit | |

| Workforce Analytics Office Add-in | | | Operating System | | |
|---|---|---|---|---|---|
| **Vendor** | **Product** | **Version** | **Vendor** | **Product** | **Version** |
| Microsoft | Office Professional and Enterprise | 2010 2007 SP2 2003 SP3 | Microsoft | Windows 8 - 64-bit | |
| | | | | Windows 7 - 32-bit and 64-bit | |
| | | | | Windows XP | SP3 |

| Database Server Technology Support | |
|---|---|
| **Database** | **Operating System** |
| 10gR2 (10.2.0.1), 11gR1 (11.1.0) and 11gR2 (11.2) 32-bit and 64-bit ✦ | All operating systems that Oracle supports for these database versions |
| Microsoft SQL Server 2005 - 32-bit and 64-Bit<br>Microsoft SQL Server 2008  - 32-bit and 64-Bit<br>Microsoft SQL Server 2008 R2 - 64 bit<br>Microsoft SQL Server 2012 - 64 bit ❖ | All operating systems that Microsoft supports for these database versions |

✦Not supported with HRMS
❖ Not supported by Analytics