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New Features

Sybase Unwired Platform 1.5.5

Contents

Supported Hardware and Software

Currently supported versions of device models and OSes, server OSes, and developer environments.

Product documentation updated for this release reflects the information in these topics. When using product documentation from version 1.5.2, refer to these topics for the most current information on supported versions.

Supported Third-Party Software and Hardware

Sybase Unwired Platform supports several versions of Windows, Windows Mobile Family, .NET, and databases for deployment to laptops, tablets, and mobile devices.

Supported Devices
Unless otherwise noted, devices below are supported in the Device Application Designer, Mobile Workflow Application, and for native code generation (Object API).

Windows (Object API only)

- Windows XP, Professional Edition, with Service Pack 2 (32-bit)
- Windows Vista, Business, Enterprise, and Ultimate Editions (32- and 64-bit)
- Windows 7 Professional, Enterprise and Ultimate Edition (32- and 64-bit)

Windows Mobile Family

- Windows Mobile 5.0 for Pocket PC (Object API only)
- Windows Mobile 5.0 for Smartphone (Object API only)
- Windows Mobile 6.0 Professional
- Windows Mobile 6.0 Standard (Object API only)
- Windows Mobile 6.1 Professional
- Windows Mobile 6.1 Standard (Object API only)
- Windows Mobile 6.5 Professional
- Windows Mobile 6.5 Standard (Object API only)

Apple

- iPad iOS 3.2
- iPhone iOS 3.1.3 - 4.1
- iPod touch iOS 3.1.3 - 4.1

RIM BlackBerry (for replication-based synchronization [RBS] only—Mobile Workflow Application and message-based synchronization [MBS] not available for the BlackBerry device platform)

- OS 4.2.1 on Blackberry 8800 (Object API only)
- OS 4.2.2 on Blackberry Curve 8300 (Object API only)
- OS 4.6.0 on Blackberry Pearl Flip 8220 and Blackberry Bold 9000 (Object API only)
- OS 4.6.1 on Blackberry Curve 8900
- OS 4.7.0 on Blackberry Storm 9530
- OS 5.0 on BlackBerry Storm 2 (9550), BlackBerry Bold 2 (9700), BlackBerry Tour 9630, and BlackBerry Curve 8530

Supported Consolidated Databases

- SQL Anywhere® 11.x

Supported Native Application Development Environments
BlackBerry

- Java Plug-in for Eclipse version 1.1
- Java Development Environment (JDE) 4.6.1, 4.7, or 5.0

iPhone

- MacOS 10.6 (Snow Leopard), Xcode 3.2.4 (MacBook or iMac). iOS SDK 4.1

Windows Mobile

- Visual Studio 2008, Microsoft .NET Compact Framework 3.5

Windows

- Visual Studio 2008, Microsoft .NET Framework 3.5
- Java Standard Edition (SE) 6.0

Supported Enterprise Information Systems (EIS) and Databases
SAP® Connectors

- SAP Java Connector (SAP JCo) 2.1.8
- Gateway 1.1 to SAP NetWeaver® Mobile 7.10

Web Services

- WS-I Basic Profile 1.1
- RESTful services, XML over HTTP(S)

Java Database Connectivity (JDBC)

- SQL Anywhere 11.x
- Adaptive Server® Enterprise 12.5.x, 15.x
- Microsoft SQL Server 2005, 2008
- Oracle 10g, 11g

- IBM DB2 UDB 9.1

Unwired Server Requirements

Make sure your system meets all requirements for Unwired Server.

Table 1. Supported operating systems

Note: For developer installations, the Windows operating systems listed below may be either the 32-bit or 64-bit version. For deployment installations, the Windows operating system must be the 64-bit version.

Operating system	Hardware	RAM
Microsoft Windows XP, Professional Edition, with Service Pack 2 (32-bit)	Intel Core 2 Duo processor running at 2GHz or greater, or equivalent AMD processor.	4GB
Microsoft Windows Vista, Business and Enterprise, and Ultimate Editions (32- or 64-bit)	Intel Core 2 Duo processor running at 2GHz or greater, or equivalent AMD processor.	4GB
Microsoft Windows 2003 Server, Standard or Enterprise Edition, with Service Pack 2 (32- or 64-bit)	Intel Core 2 Duo processor running at 2GHz or greater, or equivalent AMD processor.	4GB
Microsoft Windows 2008 and 2008 R2, Server Standard or Enterprise Edition	Intel Core 2 Duo processor running at 2GHz or greater, or equivalent AMD processor.	4GB
Microsoft Windows 7 (32- or 64-bit)	Intel Core 2 Duo processor running at 2GHz or greater, or equivalent AMD processor.	4GB

Table 2. Disk space requirements

Component	Required disk space
Unwired Server (including Sybase Control Center)	682MB

Table 3. Sybase products that cannot coexist with Unwired Platform

Product	Restriction
Adaptive Server Enterprise	Installation of Adaptive Server Enterprise and Unwired Platform on the same server is not supported.

Table 4. Supported browsers for accessing Sybase Control Center

Note: On 64-bit Windows systems, you must run the 32-bit version of these browsers.

Browser	Supported versions
Microsoft Internet Explorer	7 or 8
Firefox	3.x

Send and Receive Support for Message-Based Synchronization

Enable message-based synchronization (MBS) applications to initiate synchronization on demand, and determine the connection state of the device from the application. This can be useful when an MBS application is required to use mobile business objects (MBOs) located in cache groups with an on-demand refresh policy, or if an MBS device is disconnected for a long period of time.

The API has been extended to:

- Determine if all data was successfully downloaded or uploaded.
- Determine at any given time if a logical connection to the server is established.
- Report connection problems and temporary disconnects, with possible causes.

Documented in:

- ***Developer Reference for Windows and Windows Mobile** –* search for:

  - *Callback Handlers*
- ***Developer Reference for iOS** –* search for:

  - *Callback Handlers*
- ***Troubleshooting** –* search for:

  - *Debugging Windows and Windows Mobile Device Development*
  - *Debugging iOS Device Development*

Data Cache Maintenance Enhancements

Clean up accumulated data artifacts related to the consolidated database. Some cleanup options can be automated at the domain level, others are performed manually. The Administration API enables you to extend functionality.

Table 5. Domain-Level Cleanup Options

Option	Description
Subscription Cleanup	Removes subscriptions that are no longer referenced by any active users. • Replication-based synchronization – removes subscriptions not used since the last synchronization. • Message-based synchronization – removes subscriptions if Unwired Server has not processed a message since the given date.
Online Cache Cleanup	Removes mobile business objects (MBOs) from cache groups that use the Online cache policy.
Error History Cleanup	Removes historical data on MBO data refresh and operation replay failures, which result from system or application failures.
Client Log Cleanup	Removes client log records that have already been synchronized to the device or are no longer associated with active users.
Synchronization Cache Cleanup	Removes, from the cache, logically deleted rows that are older than the oldest synchronization time on record in the system, and unused or stale partitions.

Note: You can manually perform clean up for these options at the package level: Online Cache, Synchronization Cache, Error History, and Client Log.

Table 6. Cluster-Level Manual Cleanup Options

Option	Description
Devices	Removes devices not used since a given date. This cleanup purges device-associated items, such as subscriptions.

Option	Description
Device Users	Removes device users associated with a given security configuration, and any user-specific data not used since the specified number of days. If a security configuration is removed, it forces the cleanup of any users registered with that security configuration. The user-specific data is removed from the consolidated database.

Documented in:

- *System Administration* – search for:

  - *Data Maintenance Cleanup*
- *Sybase Control Center for Sybase Unwired Platform* – search for:

  - *Scheduling Domain-Level Cleanup*
  - *Purging Error Log History Manually*
  - *Purging Online Cache Manually*
  - *Purging Client Log Manually*
  - *Purging RBS Package Subscriptions Manually*
  - *Purging MBS Package Subscriptions Manually*
  - *Purging Unused Devices*
  - *Purging Unused Device Users*
- *Reference: Administration APIs* – search for:

  - *Retrieve Scheduled Purge Task Status*
  - *Enable Scheduled Purge Tasks*
  - *Get Purge Task Schedule*
  - *Set Purge Task Schedule*
  - *Purge Synchronization Cache*
  - *Purge Client Log*
  - *Purge Error History*
  - *Purge Online Cache*
  - *Purge Subscription*
  - *Purge RBS and MBS Subscriptions*
  - *Purge Synchronization Cache*
  - *Purge Error History*
  - *Purge Online Cache*
  - *Purge Subscription*
  - *Purge Unused Devices*
  - *Purge Unused Users*

Additional Cache Policy for Mobile Workflow

A new cache policy has been added to existing cache policies. The Online cache policy allows mobile workflow device users to interact with enterprise information system (EIS) exposed services more directly from the workflow application package.

This policy is processed as follows:

1. A mobile workflow client retrieves current EIS data when requested through an object query
2. Unwired Server caches the data just long enough to fulfill the request
3. Unwired Server immediately invalidates the cached data ensuring each client request receives the most current EIS data for each and every request

The Online policy requires at least one MBO load parameter to be propagated into an attribute. The findByParameter object query is automatically generated with the propagated attributes in the query signature. The query is used to execute the MBO load operation directly in the context of the query request, and thereby retrieves the MBO instances immediately.

Documented in:

*   ***Sybase Unwired WorkSpace - Mobile Business Object Development*** – search for:

    *   *Cache Groups*

Exception Handling and Error Codes

This feature propagates and records error codes for recoverable and non-recoverable Enterprise Information System (EIS) errors, to allow mobile applications to better handle and recover from errors between the EIS and Sybase Unwired Platform, and to improve the usability of error messages received by users of physical devices. When implementing custom error checking, the error code and message can be influenced in the result checker by throwing a `DSException`.

The Unwired Server generates log records and propagates them back to the client. During deployment a `LogRecord` class is generated for each package, and a CDB table is generated per package for storing log records. This table gets downloaded to mobile synchronization clients.

When an error occurs during a mobile client synchronization request, a `LogRecord` is created by Unwired Server and stored in the CDB. During package synchronization, the LogRecord table is synchronized to the mobile client.

Mobile applications handle errors in a callback handler, or display a message to mobile users. Error handling is enhanced because the `LogRecord` contains both the EIS error code (the

'eisCode') and the logical HTTP error code mapped to that EIS error code (the 'code'). The following logical HTTP error codes are defined for EIS errors:

Table 7. Recoverable Error Codes

Error Code	Probable Cause
409	Backend EIS is deadlocked.
503	Backend EIS down or the connection is terminated.

Table 8. Non-recoverable Error Codes

Error Code	Probable Cause	Manual Recovery Action
401	Backend EIS credentials wrong.	Change the connection information, or backend user password.
403	User authorization failed on Un-wired Server due to role con-straints (applicable only for MBS).	N/A
404	Resource (table/webservice/BA-PI) not found on Backend EIS.	Restore the EIS configuration.
405	Invalid license for the client (ap-plicable only for MBS).	N/A
412	Backend EIS threw a constraint exception.	Delete the conflicting entry in the EIS.
500	SUP internal error in modifying the CDB cache.	N/A

When an operation submitted from an Workflow Application returns an error, Unwired Server inspects the error code. If that code is one of a predefined set of recoverable error codes, the workflow queue is blocked due to the error. It is retried automatically at a configurable interval or need to be restarted manually. JSON is implementation detail in this context.

Documented in:

- *Developer Reference for Mobile Workflow Packages* – search for:

  - *HTTP Error Codes*
  - *Recovering from EIS Errors*
  - *Mapping of EIS Codes to Logical HTTP Error Codes*
- *Developer Reference for Windows and Windows Mobile*, *Developer Reference for BlackBerry*, **and** *Developer Reference for iOS* – search for:

  - *HTTP Error Codes*

- *Mapping of EIS Codes to Logical HTTP Error Codes*
- *Viewing Error Codes in Log Records*
- ***Reference: Custom Development for Unwired Server*** – search for:

   - *Writing a Custom Result Checker*

Other Component-based Enhancements

Further enhancements have been made to multiple components of this product.

Unwired Server Runtime

Beyond the new features described at the start of this document, Unwired Server runtime has undergone further enhancements.

- **Ability to invoke MBO operations with data change notifications –** Data change notifications (DCNs) can now instruct Unwired Server to invoke a mobile business object (MBO) operation with a set of specified parameters (DCN without payload). Changes to the Unwired Server cache are dependent on the operation's specified cache affecting behavior, which is defined during MBO development. DCNs that invoke operations require a JavaScript Object Notation (JSON) string (dcn_request) that contains information about the MBO operation. Do not invoke MBO operations with DCN when using personalization or complex parameters.

   Documented in:

   - ***Reference: Custom Development for Unwired Server*** – search for:

      - *Invoking MBO Operations Through Data Change Notifications*
- **SUP DCN User logical role –** A new logical role called SUP DCN User enforces DCN events for the particular security configuration to be authenticated and authorized. A user having the SUP DCN User role can issue DCN events to any package configured with the particular security configuration. In a production environment, you must map this logical role to a group or user in your directory.

   Documented in:

   - ***Sybase Control Center for Sybase Unwired Platform*** – Search for:

      - *SUP DCN User*
   - ***System Administration*** – Search for:

      - *SUP DCN User*
      - *Roles and Mappings*

Sybase Control Center

Beyond the new features described at the start of this document, Sybase Control Center has undergone further enhancements.

- **Enhanced management and data presentation for workflows and devices –** The manner in which workflow packages and their devices are manage has been improved, and data displayed has been enhanced. Administrators can now sort data displayed, as well as assign and unassign workflows to devices from either the **Workflows** node or the **Devices** node.

  Documented in:

  - *Sybase Control Center for Sybase Unwired Platform* – search for:
    - *Device Information*
    - *Mobile Workflows*

Unwired WorkSpace

Beyond the new features described at the start of this document, Unwired WorkSpace has undergone further enhancements.

- **Complete Visual Studio project support –** Now, when generating C# Object API code for Mobile Application projects from Eclipse, a Visual Studio .NET project (`.csproj`) file.

  Documented in:

  - *Sybase Unwired Workspace - Device Application Development* – Search for:
    - Rebuilding the Generated Solution in Visual Studio
- **Mobile workflow development enhancements –** Several improvements have been made to the development of mobile workflow packages:

  - **Requires activation key** and **Credentials cache key** are two new properties that have been added to allow the user to specify a key to use for activation or credentials. If the developer does not supply a key, then different keys are used for every workflow by default, which replicates workflow behavior used by 1.5.2 versions of workflow packages. However, this default behaviour can be changed so that one or more workflow packages share the same activation/credential keys. If the developer activates one workflow, then all other workflows sharing the same activation key do not need to be activated separately. Similarly, if there is more than one workflow with the same credentials key, they can all share the same credentials without having to separately define the authentication for each workflow.

- You can now bind the parameters of an operation or object query to context data in addition to a key. Some examples of context data include: **BackEndPassword**, **BackEndUser**, **DeviceId**, **DeviceName**, **DeviceType**, **UserName**, **MessageId**, **ModuleName**, **ModuleVersion**, **QueueId**.
- You can now extract to a key instead of extracting to a parameter. Values you extract to a key can, in turn, be mapped to parameters. This allows developers to extract values from the notification without needing to use them right away as parameter values. Instead developers can either bind to controls and display them to the user, or use them later on in the workflow to submit a create, read, update, or delete operation, or other uses.
- The error screen that appeared during the server transformation for synchronous submit errors no longer appears. In this release, only the asynchronous submits generate exceptions from the Unwired Server, which checks to see whether the exception is recoverable or unrecoverable, or whether a credential check failed.

  If the exception is recoverable, the workflow is returned to the queue, but with a default of a 15 minute timeout. If the exception is unrecoverable, the workflow is returned to the queue with a default of a three day timeout. This timeout temporarily blocks that workflow's queue and allows the administrator an opportunity to address the underlying cause of the exception. The administrator must address the exception. If the credential fails, an error appears in the credentials screen via a workflow message.

Documented in:

- *Developer Reference for Mobile Workflow Packages* or *Sybase Unwired WorkSpace - Device Application Development* – search for:
  - *Develop a Mobile Workflow*
- **Modified name for SAP attribute mapping option** – The **No-Output-Table** has been renamed to **Header Fields**. The functionality of this option remains the same.

Documented in:

- *Sybase Unwired WorkSpace - Mobile Business Object Development* – search for:
  - *Creating Multiple MBOs from a Single EIS Operation*
- **Improved language support for SAP JCo driver connections** – Developers can now either choose or type the correct language property for SAP data source connections. If manually entering this value, a valid language length is two characters. Only two characters are used by SAP JCo driver.

Documented in:

- *Sybase Unwired WorkSpace - Mobile Business Object Development* – search for:
  - *Creating an SAP Connection Profile*
- **Partition-level invalidation for cache-affecting operations changes** – The behavior of the **Invalidate the cache** cache policy has changed to enhance cache performance. Now, this policy restricts invalidation to only those cache partitions that are affected by the

create or update operation, and the previous behavior for this policy is removed. The **Invalidate the cache** policy cannot be used for MBOs that have data populated by data change notifications (DCNs).

Documented in:

* *Sybase Unwired WorkSpace - Mobile Business Object Development* – search for:

    * *Cache Update Policy*

Mobile Workflow Device Application

Beyond the new workflow-related features and tooling enhancements described in this document, device applications have also undergone further enhancements.

* **Improved behavior for multiple mobile workflows of different versions** – Support for multiple mobile workflows of different versions has been improved. Multiple versions have different behavior depending on how the workflow application is launched:

    * If users launches the workflow from the Workflow menu item in the device inbox, then only the latest version of this workflow can be launched. Lower versions are no longer displayed.
    * If user launches the workflow from an email, then depending on the version associated with this email, the workflow that matches defined version is launched, irrespective of whether the workflow is the latest version or not.

Documented in:

* *Developer Reference for Mobile Workflow Packages* – search for:

    * *Launching a Mobile Workflow on the Device*

APIs

Describes new or changed features for client, server, and administration APIs.

Changed APIs
The following are methods that replace existing methods. For complete information on method syntax, refer to the Developer References or the *Reference: Administration API*s.

Table 9. Changed APIs in Administration API

Administration API: SUPMonitor class	
Former method or class	**New method or class**
getSecurityLogHistories	getSecurityLogHistory

Administration API: SUPMonitor class	
Former method or class	**New method or class**
getMessagingHistorySummaries	getMessagingHistorySummary
getMessagingHistoryDetails	getMessagingHistoryDetail
getReplicationHistorySummaries	getReplicationHistorySummary
getReplicationHistoryDetails	getReplicationHistoryDetail
getDataChangeNotificationHistories	getDataChangeNotificationHistory
getDeviceNotificationHistories	getDeviceNotificationHistory
getCacheGroupPerformances	getCacheGroupPerformance
exportSecurityLogHistories	exportSecurityLogHistory
exportMessagingHistorySummaries	exportMessagingHistorySummary
exportMessagingHistoryDetails	exportMessagingHistoryDetail
exportReplicationHistorySummaries	exportReplicationHistorySummary
exportReplicationHistoryDetails	exportReplicationHistoryDetail
exportDataChangeNotificationHistories	exportDataChangeNotificationHistory
exportDeviceNotificationHistories	exportDeviceNotificationHistory
exportCacheGroupPerformances	exportCacheGroupPerformance

Administration API: SUPDomainLog class	
Former method or class	**New method or class**
getDataChangeNotificationLogs	getDataChangeNotificationLog
getMessagingLogs	getMessagingLog
getReplicationLogs	getReplicationLog
getSubscriptionLogs	getSubscriptionLog
getErrorLogs	getErrorLog
getDeviceNotificationLogs	getDeviceNotificationLog

Other Component-based Enhancements

Administration API: SUPMobileBusinessObject class	
Former method or class	**New method or class**
getPlaybackErrors	getDataRefreshErrors
deletePlaybackErrors	deleteDataRefreshErrors
getLastGoodPlayback	getLastGoodDataRefresh

Table 10. Changed APIs in Client Object API

Former method or class	**New method or class**	**Platform**
+(void) beginSynchronize: (NString*)synchronizationGroups: (NSString*)context	+(void) beginSynchronize:(SUPObject-List*)synchronizationGroups withContext:(NSString*)context	iOS
ConnectionStatus	SUPDeviceConnectionStatus	iOS
ConnectionType	SUPDeviceConnectionType	iOS
asynchOnlineLogin	beginOnlineLogin	iOS

New APIs
The following are new methods that do not replace an existing method.

Table 11. New APIs in Administration API

Administration API: SUPDomain class	
New method	**Description**
createEndpointTemplate	Creates a server connection endpoint template.
deleteEndpointTemplate	Deletes a server connection endpoint template.
updateEndpointTemplate	Updates a server connection endpoint template.
isScheduledPurgeTaskEnable	Checks to see whether domain-level cleanup is scheduled for the purge task type specified.
enableScheduledPurgeTask	Enables domain-level cleanup using the current scheduled purge task values.
getPurgeTaskSchedule	Gets the cleanup schedule for the selected purge task type.
setPurgeTaskSchedule	Sets the domain-level cleanup schedule for the selected purge task.
purgeSyncCacheGroup	Purges synchronization cache at the domain level.

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Administration API: SUPDomain class	
New method	**Description**
purgeClientLog	Purges the client log at the domain level.
getClientLogPurgeOption	Retrieves the current client log purge settings at the domain level.
setClientLogPurgeOption	Sets the client log purge options at the domain level using the current settings.
purgeErrorHistory	Purges the error history at the domain level.
getErrorHistoryPurgeOption	Gets the current error history purge option settings at the domain level.
setErrorHistoryPurgeOption	Sets the error history purge options at the domain level using current settings.
purgeOnlineCacheGroup	Purges the online cache at the domain level.
purgeSubscription	Purges subscriptions at the domain level.
getSubscriptionPurgeOption	Retrieves the current subscription purge options at domain level.
setSubscriptionPurgeOption	Sets the subscription purge options at the domain level.

Administration API: SUPPackage class
New method
purgeSyncCacheGroup
purgeErrorHistory
purgeOnlineCacheGroup
purgeSubscription
purgeSubscriptions

Administration API: SUPDeviceUser class
New method
purgeDevices
purgeUsers

Table 12. New APIs in Client Object API

New method or property	Platform

New property:
 	
`ConnectionProfile` – new `databaseFile` property.
 	
For example:
<pre>ConnectionProfile cp = MyDatabaseClass.get-
ConnectionProfile();
Cp.setProperty("databaseFile", "database-
File")</pre>
	Windows and Windows Mobile

Callback handler method:
<pre>void OnConnectionStatusChange(int status_1,
int type 2, int errorCode, string errorMes-
sage)</pre>
	Windows and Windows Mobile

Callback handler method:
<pre>void onConnectionStatusChange:(SUPDeviceCon-
nectionStatus)connStatus:
(SUPDeviceConnectionType)connType:
(int32_t)errCode:(NSString*)errString;</pre>
	iOS

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