



OSID V3 Specifications dictionary package

Version Draft 3

This specifications represent a draft for OSID V3 interface definitions. These definitions may change at any time.

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Package Description	osid.dictionary package
Interfaces	<ul style="list-style-type: none">osid.dictionary.DictionaryProfileosid.dictionary.DictionaryManagerosid.dictionary.DictionaryProxyManagerosid.dictionary.EntryRetrievalSessionosid.dictionary.EntryLookupSessionosid.dictionary.EntrySearchSessionosid.dictionary.EntryAdminSessionosid.dictionary.EntryNotificationSessionosid.dictionary.DictionaryLookupSessionosid.dictionary.DictionarySearchSessionosid.dictionary.DictionaryAdminSessionosid.dictionary.DictionaryNotificationSessionosid.dictionary.DictionaryHierarchySessionosid.dictionary.DictionaryHierarchyDesignSessionosid.dictionary.Entryosid.dictionary.EntryQueryosid.dictionary.EntrySearchosid.dictionary.EntrySearchResultsosid.dictionary.EntryReceiverosid.dictionary.EntryListosid.dictionary.Dictionaryosid.dictionary.DictionaryQueryosid.dictionary.DictionarySearchosid.dictionary.DictionarySearchResultsosid.dictionary.DictionaryReceiverosid.dictionary.DictionaryList

Package	osid.dictionary
Title	Dictionary Open Service Interface Definitions
Version	3.0.0
Description	<p>The Dictionary OSID manages key/value pairs. A key and a value may be of an arbitrary type. Dictionaries may be used to support a Locale or Configuration OSID, or may be used to provide any translation or conversion. The Dictionary OSID is a powerful tool for abstracting and simplifying applications and other OSID implementations.</p> <p>The Dictionary OSID supports federation or multiple dictionaries through the Dictionary interface. Each Dictionary object is characterized by a display name, description, a set of properties, and may contain zero or more Entry objects. Each entry identifies a key/value pair. Dictionary objects may be structured in the form of a hierarchy to categorize a set of dictionaries or for the purpose of inheritance.</p> <p>Basic Example:</p> <pre>EntryLookupSession lookupSession = mgr.getEntryLookupSession(); string definition = (string) lookupSession.getEntry("gambrel", strType, strType);</pre> <p>Federated Example:</p> <pre>DictionaryLookupSession dictLookupSession = mgr.getDictionaryLookupSession(); Dictionary dict = dictLookupSession.getDictionary(dict_id); EntryLookupSession lookupSession = mgr.getEntryLookupSessionForDictionary(dict);</pre>

Interface	osid.dictionary.DictionaryProfile	
Implements	osid.OsidProfile	
Description	The DictionaryProfile describes the interoperability among dictionary services.	
Method	supportsVisibleFederation	
Description	Tests if any dictionary federation is exposed. Federation is exposed when a specific dictionary may be identified, selected and used to create a lookup or admin session. Federation is not exposed when a set of dictionaries appears as a single dictionary.	
Return	boolean	true if federation is visible false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsEntryRetrieval	
Description	Tests if retrieving dictionary entries are supported.	
Return	boolean	true if entry retrieval is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsEntrySearch	
Description	Tests if searching dictionary entries are supported.	
Return	boolean	true if entry search is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsEntryLookup	
Description	Tests if looking up dictionary entries are supported.	
Return	boolean	true if entry lookup is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsEntryAdmin	
Description	Tests if a dictionary entry administrative service is supported.	
Return	boolean	true if dictionary entry administration is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsEntryNotification	
Description	Tests if a dictionary entry notification service is supported.	
Return	boolean	true if dictionary entry notification is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsDictionaryLookup	
Description	Tests if a dictionary lookup service is supported.	
Return	boolean	true if dictionary lookup is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsDictionarySearch	
Description	Tests if a dictionary search service is supported.	
Return	boolean	true if dictionary search is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsDictionaryAdmin	
Description	Tests if a dictionary administrative service is supported.	
Return	boolean	true if dictionary administration is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	supportsDictionaryNotification	
Description	Tests if a dictionary notification service is supported.	
Return	boolean	true if dictionary notification is supported, false otherwise
Compliance	mandatory	This method must be implemented.

Method	supportsDictionaryHierarchyTraversal	
Description	Tests if a dictionary hierarchy traversal service is supported.	
Return	<code>boolean</code>	true if dictionary hierarchy traversal is supported, false otherwise
Compliance	<code>mandatory</code>	This method must be implemented.
Method	supportsDictionaryHierarchyDesign	
Description	Tests if a dictionary hierarchy design service is supported.	
Return	<code>boolean</code>	true if dictionary hierarchy design is supported, false otherwise
Compliance	<code>mandatory</code>	This method must be implemented.
Method	supportsDictionaryHierarchySequencing	
Description	Tests if the dictionary hierarchy supports node sequencing.	
Return	<code>boolean</code>	true if dictionary hierarchy node sequencing is supported, false otherwise
Compliance	<code>mandatory</code>	This method must be implemented.
Method	getEntryKeyTypes	
Description	Gets the supported Entry key types.	
Return	<code>osid.type.TypeList</code>	a list containing the supported Entry key types
Compliance	<code>mandatory</code>	This method must be implemented.
Method	supportsEntryKeyType	
Description	Tests if the given Entry key type is supported.	
Parameters	<code>osid.type.Type</code>	<code>keyType</code>
	a Type indicating an Entry key type	
Return	<code>boolean</code>	true if the given Type is supported, false otherwise
Compliance	<code>mandatory</code>	This method must be implemented.
Method	getEntryValueTypes	
Description	Gets the supported Entry value types.	
Return	<code>osid.type.TypeList</code>	a list containing the supported Entry value types
Compliance	<code>mandatory</code>	This method must be implemented.
Method	supportsEntryValueType	
Description	Tests if the given Entry value type is supported.	
Parameters	<code>osid.type.Type</code>	<code>valueType</code>
	a Type indicating an Entry value type	
Return	<code>boolean</code>	true if the given Type is supported, false otherwise
Compliance	<code>mandatory</code>	This method must be implemented.
Method	supportsEntryTypes	
Description	Tests if the given Entry key and value types are supported.	
Parameters	<code>osid.type.Type</code>	<code>keyType</code>
	a Type indicating an Entry key type	
	<code>osid.type.Type</code>	<code>valueType</code>
	a Type indicating an Entry value type	
Return	<code>boolean</code>	true if the given Types are supported, false otherwise
Compliance	<code>mandatory</code>	This method must be implemented.
Method	getEntrySearchRecordTypes	
Description	Gets the supported Entry search record types.	
Return	<code>osid.type.TypeList</code>	a list containing the supported Entry search record types
Compliance	<code>mandatory</code>	This method must be implemented.
Method	supportsEntrySearchRecordType	
Description	Tests if the given Entry search record type is supported.	
Parameters	<code>osid.type.Type</code>	<code>entrySearchrecordType</code>
	a Type indicating a Entry search record type	
Return	<code>boolean</code>	true if the given Type is supported, false otherwise
Compliance	<code>mandatory</code>	This method must be implemented.

Method	getDictionaryRecordTypes	
Description	Gets the supported Dictionary record types.	
Return	osid.type.TypeList	a list containing the supported Dictionary record types
Compliance	mandatory	This method must be implemented.
Method	supportsDictionaryrecordType	
Description	Tests if the given Dictionary record type is supported.	
Parameters	osid.type.Type	dictionaryRecordType a Type indicating a Dictionary record type
Return	boolean	true if the given record Type is supported, false otherwise
Compliance	mandatory	This method must be implemented.
Method	getDictionarySearchRecordTypes	
Description	Gets the supported Dictionary search record types.	
Return	osid.type.TypeList	a list containing the supported Dictionary search record types
Compliance	mandatory	This method must be implemented.
Method	supportsDictionarySearchRecordType	
Description	Tests if the given Dictionary search record type is supported.	
Parameters	osid.type.Type	dictionarySearchRecordType a Type indicating a Dictionary search record type
Return	boolean	true if the given record Type is supported, false otherwise
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionaryManager	
Implements	osid.OsidManager osid.dictionary.DictionaryProfile	
Description	<p>The dictionary manager provides access to dictionary sessions and provides interoperability tests for various aspects of this service. The sessions included in this manager are:</p> <ul style="list-style-type: none"> • EntryRetrievalSession: a basic session for retrieving dictionary entries • EntryLookupSession: a session for looking up dictionary entries • EntrySearchSession: a session for searching for dictionary entries • EntryAdminSession: a session for creating, updating, and deleting dictionary entries • EntryNotificationSession: a session for subscribing to notifications about dictionary entries • DictionaryLookupSession a session for looking up dictionaries • DictionarySearchSession a session for searching among dictionaries • DictionaryAdminSession a session for creating, updating or deleting dictionaries • DictionaryNotificationSession: a session for subscribing to adds and changes of dictionaries • DictionaryHierarchySession: a session for traversing the hierarchy of dictionaries • DictionaryHierarchyDesignSession: a session for managing the dictionary hierarchy 	
Method	getEntryRetrievalSession	
Description	Gets the OsidSession used to retrieve dictionary entries.	
Return	osid.dictionary.EntryRetrievalSession	the new EntryRetrievalSession
Errors	OPERATION_FAILED UNIMPLEMENTED	unable to complete request supportsEntryRetrieval() is false
Compliance	optional	This method must be implemented if supportsEntryRetrieval() is true.
Method	getEntryRetrievalSessionForDictionary	
Description	Gets the OsidSession used to retrieve dictionary entries for the specified Dictionary.	
Parameters	osid.id.Id dictionaryId	the Id of the Dictionary to use
Return	osid.dictionary.EntryRetrievalSession	an EntryRetrievalSession
Errors	NOT_FOUND NULL_ARGUMENT OPERATION_FAILED UNIMPLEMENTED	no Dictionary found by the given Id dictionaryId is null unable to complete request supportsEntryRetrieval() or supportsVisibleFederation() is false
Compliance	optional	This method must be implemented if supportsEntryRetrieval() and supportsVisibleFederation() are true.
Method	getEntryLookupSession	
Description	Gets the OsidSession used to retrieve dictionary entries.	
Return	osid.dictionary.EntryLookupSession	an EntryLookupSession
Errors	OPERATION_FAILED UNIMPLEMENTED	unable to complete request supportsEntryLookup() is false
Compliance	optional	This method must be implemented if supportsEntryLookup() is true.

Method	getEntryLookupSessionForDictionary	
Description	Gets the OsidSession used to lookup dictionary entries for the specified Dictionary.	
Parameters	osid.id.Id	dictionaryId the Id of the Dictionary to use
Return	osid.dictionary.EntryLookupSession	an EntryLookupSession
Errors	NOT_FOUND NULL_ARGUMENT OPERATION_FAILED UNIMPLEMENTED	no Dictionary found by the given Id dictionaryId is null unable to complete request supportsEntryLookup() or supportsVisibleFederation() is false
Compliance	optional	This method must be implemented if supportsEntryLookup() and supportsVisibleFederation() are true.
Method	getEntrySearchSession	
Description	Gets the OsidSession used to search dictionary entries.	
Return	osid.dictionary.EntrySearchSession	an EntrySearchSession
Errors	OPERATION_FAILED UNIMPLEMENTED	unable to complete request supportsEntrySearch() is false
Compliance	optional	This method must be implemented if supportsEntrySearch() is true.
Method	getEntrySearchSessionForDictionary	
Description	Gets the OsidSession used to search dictionary entries for the specified Dictionary.	
Parameters	osid.id.Id	dictionaryId the Id of the Dictionary to use
Return	osid.dictionary.EntrySearchSession	an EntrySearchSession
Errors	NOT_FOUND NULL_ARGUMENT OPERATION_FAILED UNIMPLEMENTED	no Dictionary found by the given Id dictionaryId is null unable to complete request supportsEntrySearch() or supportsVisibleFederation() is false
Compliance	optional	This method must be implemented if supportsEntrySearch() and supportsVisibleFederation() are true.
Method	getEntryAdminSession	
Description	Gets the OsidSession used to administer dictionary entries.	
Return	osid.dictionary.EntryAdminSession	an EntryAdminSession
Errors	OPERATION_FAILED UNIMPLEMENTED	unable to complete request supportsEntryAdmin() is false
Compliance	optional	This method must be implemented if supportsEntryAdmin() is true.
Method	getEntryAdminSessionForDictionary	
Description	Gets the OsidSession used to administer dictionary entries for the specified Dictionary.	
Parameters	osid.id.Id	dictionaryId the Id of the Dictionary to use
Return	osid.dictionary.EntryAdminSession	an EntryAdminSession
Errors	NOT_FOUND NULL_ARGUMENT OPERATION_FAILED UNIMPLEMENTED	no Dictionary found by the given Id dictionaryId is null unable to complete request supportsEntryAdmin() os supportsVisibleFederation() is false
Compliance	optional	This method must be implemented if supportsEntryAdmin() and supportsVisibleFederation() are true.

Method	getEntryNotificationSession		
Description	Gets an EntryNotificationSession which is responsible for subscribing to entry changes within a default Dictionary.		
Parameters	<code>osid.dictionary.EntryReceiver</code>	receiver	the notification callback
Return	<code>osid.dictionary.EntryNotificationSession</code>		an EntryNotificationSession
Errors	<code>NULL_ARGUMENT</code>		receiver is null
	<code>OPERATION_FAILED</code>		unable to complete request
	<code>UNIMPLEMENTED</code>		<code>supportsEntryNotification()</code> is false
Compliance	<code>optional</code>		This method must be implemented if <code>supportsEntryNotification()</code> is true.
Method	getEntryNotificationSessionForDictionary		
Description	Gets an EntryNotificationSession which is responsible for subscribing to entry changes for a specified Dictionary.		
Parameters	<code>osid.dictionary.EntryReceiver</code>	receiver	the notification callback
	<code>osid.id.Id</code>	dictionaryId	the Id of the Dictionary to use
Return	<code>osid.dictionary.EntryNotificationSession</code>		an EntryNotificationSession
Errors	<code>NOT_FOUND</code>		no Dictionary found by the given Id
	<code>NULL_ARGUMENT</code>		receiver or dictionaryId is null
	<code>OPERATION_FAILED</code>		unable to complete request
	<code>UNIMPLEMENTED</code>		<code>supportsEntryNotification()</code> or <code>supportsVisibleFederation()</code> is false
Compliance	<code>optional</code>		This method must be implemented if <code>supportsEntryNotification()</code> and <code>supportsVisibleFederation()</code> are true.
Method	getDictionaryLookupSession		
Description	Gets the OsidSession used to lookup dictionaries.		
Return	<code>osid.dictionary.DictionaryLookupSession</code>		a DictionaryLookupSession
Errors	<code>OPERATION_FAILED</code>		unable to complete request
	<code>UNIMPLEMENTED</code>		<code>supportsDictionarySearch()</code> is false
Compliance	<code>optional</code>		This method must be implemented if <code>supportsDictionaryLookup()</code> and <code>supportsVisibleFederation()</code> are true.
Method	getDictionarySearchSession		
Description	Gets the OsidSession used to search dictionaries.		
Return	<code>osid.dictionary.DictionarySearchSession</code>		a DictionarySearchSession
Errors	<code>OPERATION_FAILED</code>		unable to complete request
	<code>UNIMPLEMENTED</code>		<code>supportsDictionarySearch()</code> is false
Compliance	<code>optional</code>		This method must be implemented if <code>supportsDictionarySearch()</code> and <code>supportsVisibleFederation()</code> are true.
Method	getDictionaryAdminSession		
Description	Gets the OsidSession used to administer dictionaries		
Return	<code>osid.dictionary.DictionaryAdminSession</code>		a DictionaryAdminSession
Errors	<code>OPERATION_FAILED</code>		unable to complete request
	<code>UNIMPLEMENTED</code>		<code>supportsDictionaryAdmin()</code> is false
Compliance	<code>optional</code>		This method must be implemented if <code>supportsDictionaryAdmin()</code> is true.

Method	getDictionaryNotificationSession	
Description	Gets the OsidSession used to receive notifications of dictionary changes.	
Parameters	<code>osid.dictionary.DictionaryReceiver</code>	receiver the notification callback
Return	<code>osid.dictionary.DictionaryNotificationSession</code>	a DictionaryNotificationSession
	<code>NULL_ARGUMENT</code>	receiver is null
Errors	<code>OPERATION_FAILED</code>	unable to complete request
	<code>UNIMPLEMENTED</code>	supportsDictionaryNotification() is false
Compliance	<code>optional</code>	This method must be implemented if supportsDictionaryNotification() is true.
Method	getDictionaryHierarchySession	
Description	Gets hierarchy service for traversing the Dictionary hierarchy. A parent includes all the dictionary entries of its children.	
Return	<code>osid.dictionary.DictionaryHierarchySession</code>	a DictionaryHierarchySession
	<code>OPERATION_FAILED</code>	unable to complete request
Errors	<code>UNIMPLEMENTED</code>	supportsDictionaryHierarchyTraversal() is false
Compliance	<code>optional</code>	This method must be implemented.
Method	getDictionaryHierarchyDesignSession	
Description	Gets hierarchy service for structuring Dictionary objects.	
Return	<code>osid.dictionary.DictionaryHierarchyDesignSession</code>	a DictionaryHierarchyDesignSession
	<code>OPERATION_FAILED</code>	unable to complete request
Errors	<code>UNIMPLEMENTED</code>	supportsDictionaryHierarchyDesign() is false
Compliance	<code>optional</code>	This method must be implemented.

Interface	osid.dictionary.DictionaryProxyManager		
Implements	osid.OsidProxyManager osid.dictionary.DictionaryProfile		
Description	<p>The dictionary manager provides access to dictionary sessions and provides interoperability tests for various aspects of this service. Methods in this manager support an Authentication object for the purposes of proxy authentication. The sessions included in this manager are:</p> <ul style="list-style-type: none"> • EntryRetrievalSession: a basic session for retrieving dictionary entries • EntryLookupSession: a session for looking up dictionary entries • EntrySearchSession: a session for searching for dictionary entries • EntryAdminSession: a session for creating, updating, and deleting dictionary entries • EntryNotificationSession: a session for subscribing to notifications about dictionary entries • DictionaryLookupSession: a session for looking up dictionaries • DictionarySearchSession: a session for searching among dictionaries • DictionaryAdminSession: a session for creating, updating or deleting dictionaries • DictionaryNotificationSession: a session for subscribing to adds and changes of dictionaries • DictionaryHierarchySession: a session for traversing the hierarchy of dictionaries • DictionaryHierarchyDesignSession: a session for managing the dictionary hierarchy 		
Method	getEntryRetrievalSession		
Description	Gets the OsidSession used to retrieve dictionary entries using the supplied Authentication.		
Parameters	osid.authentication.Authentication	authentication	proxy authentication
Return	osid.dictionary.EntryRetrievalSession		
Errors	<p>NULL_ARGUMENT authentication is null</p> <p>OPERATION_FAILED unable to complete request</p> <p>PERMISSION_DENIED authentication is invalid</p> <p>UNIMPLEMENTED supportsEntryRetrieval() is false</p> <p>UNSUPPORTED the authentication service is not supported</p>		
Compliance	optional		
Method	getEntryRetrievalSessionForDictionary		
Description	Gets the OsidSession used to retrieve dictionary entries for the specified Dictionary using the supplied Authentication.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to use
Parameters	osid.authentication.Authentication	authentication	proxy authentication
Return	osid.dictionary.EntryRetrievalSession		
Errors	<p>NOT_FOUND no Dictionary found by the given Id</p> <p>NULL_ARGUMENT dictionaryId or authentication is null</p> <p>OPERATION_FAILED unable to complete request</p> <p>PERMISSION_DENIED authentication is invalid</p> <p>UNIMPLEMENTED supportsEntryRetrieval() or supportsVisibleFederation() is false</p> <p>UNSUPPORTED the authentication service is not supported</p>		
Compliance	optional		

Method	getEntryLookupSession				
Description	Gets the OsidSession used to lookup dictionary entries using the supplied Authentication.				
Parameters	<code>osid.authentication.Authentication</code>	authentication	proxy authentication		
Return	<code>osid.dictionary.EntryLookupSession</code>	an EntryLookupSession			
Errors	<code>NULL_ARGUMENT</code>	authentication is null			
	<code>OPERATION_FAILED</code>	unable to complete request			
	<code>PERMISSION_DENIED</code>	authentication is invalid			
	<code>UNIMPLEMENTED</code>	supportsEntryLookup() is false			
	<code>UNSUPPORTED</code>	the authentication service is not supported			
Compliance	<code>optional</code>	This method must be implemented if supportsEntryLookup() is true.			
Method	getEntryLookupSessionForDictionary				
Description	Gets the OsidSession used to lookup dictionary entries for the specified Dictionary using the supplied Authentication.				
Parameters	<code>osid.id.Id</code>	dictionaryId	the Id of the Dictionary to use		
	<code>osid.authentication.Authentication</code>	authentication	proxy authentication		
Return	<code>osid.dictionary.EntryLookupSession</code>	an EntryLookupSession			
Errors	<code>NOT_FOUND</code>	no Dictionary found by the given Id			
	<code>NULL_ARGUMENT</code>	dictionaryId or authentication is null			
	<code>OPERATION_FAILED</code>	unable to complete request			
	<code>PERMISSION_DENIED</code>	authentication is invalid			
	<code>UNIMPLEMENTED</code>	supportsEntryLookup() or supportsVisibleFederation() is false			
	<code>UNSUPPORTED</code>	the authentication service is not supported			
Compliance	<code>optional</code>	This method must be implemented if supportsEntryLookup(), supportsVisibleFederation() are true.			
Method	getEntrySearchSession				
Description	Gets the OsidSession used to search among dictionary entries using the supplied Authentication.				
Parameters	<code>osid.authentication.Authentication</code>	authentication	proxy authentication		
Return	<code>osid.dictionary.EntrySearchSession</code>	an EntrySearchSession			
Errors	<code>NULL_ARGUMENT</code>	authentication is null			
	<code>OPERATION_FAILED</code>	unable to complete request			
	<code>PERMISSION_DENIED</code>	authentication is invalid			
	<code>UNIMPLEMENTED</code>	supportsEntrySearch() is false			
	<code>UNSUPPORTED</code>	the authentication service is not supported			
Compliance	<code>optional</code>	This method must be implemented if supportsEntrySearch() is true.			

Method	getEntrySearchSessionForDictionary		
Description	Gets the OsidSession used to search among dictionary entries for the specified Dictionary using the supplied Authentication.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to use
	osid.authentication.Authentication	authentication	proxy authentication
Return	osid.dictionary.EntrySearchSession		
Errors	NOT_FOUND		
	no Dictionary found by the given Id		
	NULL_ARGUMENT		
	dictionaryId or authentication is null		
	OPERATION_FAILED		
	unable to complete request		
PERMISSION_DENIED	authentication is invalid		
UNIMPLEMENTED	supportsEntrySearch() or supportsVisibleFederation() is false		
UNSUPPORTED	the authentication service is not supported		
Compliance	optional		
	This method must be implemented if supportsEntrySearch(), supportsVisibleFederation() are true.		
Method	getEntryAdminSession		
Description	Gets the OsidSession used to administer dictionary entries using the supplied Authentication.		
Parameters	osid.authentication.Authentication	authentication	proxy authentication
Return	osid.dictionary.EntryAdminSession		
Errors	NULL_ARGUMENT		
	authentication is null		
	OPERATION_FAILED		
	unable to complete request		
	PERMISSION_DENIED		
	authentication is invalid		
UNIMPLEMENTED	supportsEntryAdmin() is false		
UNSUPPORTED	the authentication service is not supported		
Compliance	optional		
	This method must be implemented if supportsEntryAdmin() is true.		
Method	getEntryAdminSessionForDictionary		
Description	Gets the OsidSession used to administer dictionary entries for the specified Dictionary using the supplied Authentication.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to use
	osid.authentication.Authentication	authentication	proxy authentication
Return	osid.dictionary.EntryAdminSession		
Errors	NOT_FOUND		
	no Dictionary found by the given Id		
	NULL_ARGUMENT		
	dictionaryId or authentication is null		
	OPERATION_FAILED		
	unable to complete request		
PERMISSION_DENIED	authentication is invalid		
UNIMPLEMENTED	supportsEntryAdmin() os supportsVisibleFederation() is false		
UNSUPPORTED	the authentication service is not supported		
Compliance	optional		
	This method must be implemented if supportsEntryAdmin(), supportsVisibleFederation() are true.		

Method	getEntryNotificationSession		
Description	Gets an EntryNotificationSession which is responsible for subscribing to entry changes within a default Dictionary.		
Parameters	<code>osid.dictionary.EntryReceiver</code>	receiver	the notification callback
	<code>osid.authentication.Authentication</code>	authentication	proxy authentication
Return	<code>osid.dictionary.EntryNotificationSession</code>		an EntryNotificationSession
Errors	<code>NULL_ARGUMENT</code>	receiver or authentication is null	
	<code>OPERATION_FAILED</code>	unable to complete request	
	<code>PERMISSION_DENIED</code>	authentication is invalid	
	<code>UNIMPLEMENTED</code>	supportsEntryNotification() is false	
	<code>UNSUPPORTED</code>	the authentication service is not supported	
Compliance	<code>optional</code>		This method must be implemented if supportsEntryNotification() is true.
Method	getEntryNotificationSessionForDictionary		
Description	Gets an EntryNotificationSession which is responsible for subscribing to entry changes for a specified Dictionary.		
Parameters	<code>osid.dictionary.EntryReceiver</code>	receiver	the notification callback
	<code>osid.id.Id</code>	dictionaryId	the Id of the Dictionary to use
	<code>osid.authentication.Authentication</code>	authentication	proxy authentication
Return	<code>osid.dictionary.EntryNotificationSession</code>		an EntryNotificationSession
Errors	<code>NOT_FOUND</code>	no Dictionary found by the given Id	
	<code>NULL_ARGUMENT</code>	receiver, dictionaryId or authentication is null	
	<code>OPERATION_FAILED</code>	unable to complete request	
	<code>PERMISSION_DENIED</code>	authentication is invalid	
	<code>UNIMPLEMENTED</code>	supportsEntryNotification() or supportsVisibleFederation() is false	
	<code>UNSUPPORTED</code>	the authentication service is not supported	
Compliance	<code>optional</code>		This method must be implemented if supportsEntryNotification() and supportsVisibleFederation() are true.
Method	getDictionaryLookupSession		
Description	Gets the OsidSession used to lookup dictionaries using the supplied Authentication.		
Parameters	<code>osid.authentication.Authentication</code>	authentication	proxy authentication
Return	<code>osid.dictionary.DictionaryLookupSession</code>		a DictionaryLookupSession
Errors	<code>NULL_ARGUMENT</code>	authentication is null	
	<code>OPERATION_FAILED</code>	unable to complete request	
	<code>PERMISSION_DENIED</code>	authentication is invalid	
	<code>UNIMPLEMENTED</code>	supportsDictionarySearch() is false	
	<code>UNSUPPORTED</code>	the authentication service is not supported	
Compliance	<code>optional</code>		This method must be implemented if supportsDictionaryLookup() and supportsVisibleFederation() are true.

Method	getDictionarySearchSession				
Description	Gets the OsidSession used to search for dictionaries using the supplied Authentication.				
Parameters	osid.authentication.Authentication	authentication	proxy authentication		
Return	osid.dictionary.DictionarySearchSession	a DictionarySearchSession			
Errors	NULL_ARGUMENT	authentication is null			
	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authentication is invalid			
	UNIMPLEMENTED	supportsDictionarySearch() is false			
	UNSUPPORTED	the authentication service is not supported			
Compliance	optional	This method must be implemented if supportsDictionarySearch() and supportsVisibleFederation() are true.			
Method	getDictionaryAdminSession				
Description	Gets the OsidSession used to administer dictionaries using the supplied Authentication.				
Parameters	osid.authentication.Authentication	authentication	proxy authentication		
Return	osid.dictionary.DictionaryAdminSession	a DictionaryAdminSession			
Errors	NULL_ARGUMENT	authentication is null			
	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authentication is invalid			
	UNIMPLEMENTED	supportsDictionaryAdmin() is false			
	UNSUPPORTED	the authentication service is not supported			
Compliance	optional	This method must be implemented if supportsDictionaryAdmin() is true.			
Method	getDictionaryNotificationSession				
Description	Gets the OsidSession used to subscribe to notifications of new, updated or deleted dictionaries using the supplied Authentication.				
Parameters	osid.dictionary.DictionaryReceiver	receiver	the notification callback		
	osid.authentication.Authentication	authentication	proxy authentication		
Return	osid.dictionary.DictionaryNotificationSession	a DictionaryNotificationSession			
Errors	NULL_ARGUMENT	receiver or authentication is null			
	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authentication is invalid			
	UNIMPLEMENTED	supportsDictionaryNotification() is false			
	UNSUPPORTED	the authentication service is not supported			
Compliance	optional	This method must be implemented if supportsDictionaryNotification() is true.			
Method	getDictionaryHierarchySession				
Description	Gets the hierarchy traversing the Dictionary hierarchy. The parent includes all dictionary elements of its children.				
Parameters	osid.authentication.Authentication	authentication	proxy authentication		
Return	osid.dictionary.DictionaryHierarchySession	a DictionaryHierarchySession			
Errors	NULL_ARGUMENT	authentication is null			
	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authentication is invalid			
	UNIMPLEMENTED	supportsDictionaryHierarchy() is false			
	UNSUPPORTED	the Authentication service is not supported			
Compliance	optional	This method must be implemented if supportsDictionaryHierarchyTraversal() is true.			

Method	getDictionaryHierarchyDesignSession	
Description	Gets the hierarchy managing the Dictionary hierarchy. The parent includes all dictionary elements of its children.	
Parameters	osid.authentication.Authentication	authentication proxy authentication
Return	osid.dictionary.DictionaryHierarchyDesignSession	a DictionaryHierarchyDesignSession
Errors	NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED UNIMPLEMENTED UNSUPPORTED	authentication is null unable to complete request authentication is invalid supportsDictionaryHierarchyDesign() is false the Authentication service is not supported
Compliance	optional	This method must be implemented if supportsDictionaryHierarchyDesign() is true.

Interface	osid.dictionary.EntryRetrievalSession	
Implements	osid.OsidSession	
Description	<p>EntryRetrievalSession is used to query dictionary entries. A dictionary entry contains a key and a value. The uniqueness of the entry depends on the key, the key type and the value type.</p> <p>This session defines two views which offer differing behaviors when retrieving multiple objects.</p> <ul style="list-style-type: none"> • federated view: entries are accessible from the Dictionary associated with this session and any descendant dictionaries in the Dictionary hierarchy • isolated view: entries are accessible from this Dictionary only 	
Method	getDictionaryId	
Description	Gets the Dictionary Id associated with this session.	
Return	osid.id.Id	the Dictionary Id associated with this session
Compliance	mandatory	This method must be implemented.
Method	getDictionary	
Description	Gets the Dictionary associated with this session.	
Return	osid.dictionary.Dictionary	the Dictionary associated with this session
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	canAccessEntries	
Description	Tests if this user can perform Entry lookups. A return of true does not guarantee successful authorization. A return of false indicates that it is known all methods in this session will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer lookup operations to unauthorized users.	
Return	boolean	false if lookup methods are not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	useFederatedDictionaryView	
Description	Federates the view for methods in this session. A federated view will include entries from descendant dictionaries in the dictionary hierarchy.	
Compliance	mandatory	This method is must be implemented.
Method	useIsolatedDictionaryView	
Description	Isolates the view for methods in this session. An isolated view restricts lookups to this dictionary only.	
Compliance	mandatory	This method is must be implemented.

Method	getEntry		
Description	Gets the Dictionary entry associated with the given key and types. The keyType indicates the key object type and the valueType indicates the value object return. Unlike the general pattern that defines core OsidObject interfaces, keys and values are completely defined outside the specification. Casting may be used directly from the return of this method in accordance with the object specified by the valueType.		
Parameters	object	key	the key of the entry to retrieve
	osid.type.Type	keyType	the key type of the entry to retrieve
	osid.type.Type	valueType	the value type of the entry to retrieve
Return	object		the returned object
Errors	INVALID_ARGUMENT		key is not of keyType
	NOT_FOUND		no entry found
	NULL_ARGUMENT		key, keyType or valueType is null
	OPERATION_FAILED		unable to complete request
	PERMISSION_DENIED		authorization failure
	UNSUPPORTED		DictionaryManager.supportsEntryTypes(keyType, valueType) is false
Compliance	mandatory		This method must be implemented.

Interface	osid.dictionary.EntryLookupSession	
Implements	osid.dictionary.EntryRetrievalSession	
Description	<p>EntryLookupSession defines an interface to lookup dictionary entries. This session includes the methods defined in the EntryRetrievalSession.</p> <p>This session defines two views which offer differing behaviors when retrieving multiple objects.</p> <ul style="list-style-type: none"> comparative view: elements may be silently omitted or re-ordered plenary view: provides a complete and ordered result set or is an error condition <p>Generally, the comparative view should be used for most applications as it permits operation even if there is data out of sync or there is an authorization block in a particular element</p>	
Method	useComparativeEntryView	
Description	The returns from the lookup methods may omit or translate elements based on this session, such as authorization, and not result in an error. This view is used when greater interoperability is desired at the expense of precision.	
Compliance	mandatory	This method is must be implemented.
Method	usePlenaryEntryView	
Description	A complete view of the Entry returns is desired. Methods will return what is requested or result in an error. This view is used when greater precision is desired at the expense of interoperability.	
Compliance	mandatory	This method is must be implemented.
Method	getEntries	
Description	Gets all the Dictionary entries.	
Return	osid.dictionary.EntryList	the list of entries
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	getEntriesByKeyType	
Description	Gets all the Dictionary entries matching the given key Type.	
Parameters	osid.type.Type	keyType
Return	osid.dictionary.EntryList	the list of entries matching keyType
Errors	NULL_ARGUMENT	keyType is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	getEntriesByKeyAndValueType	
Description	Gets all the Dictionary entries matching the given key and value Type.	
Parameters	osid.type.Type	keyType
	osid.type.Type	valueType
Return	osid.dictionary.EntryList	the list of entries matching keyType
Errors	NULL_ARGUMENT	keyType or valueType is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.EntrySearchSession	
Implements	osid.OsidSession	
Description	<p>This session provides methods for searching among entries. The search query is constructed using the EntryQuery interface. The key Type also specifies the interface for the key query.</p> <p>getEntryByQuery() is the basic search method and returns a list of Entries. A more advanced search may be performed with getEntriesBySearch(). It accepts an EntrySearch interface in addition to the query interface for the purpose of specifying additional options affecting the entire search, such as ordering. getEntriesBySearch() returns a EntrySearchResult interface that can be used to access the resulting EntryList or be used to perform a search within the result set through EntrySearch.</p>	
Method	getDictionaryId	
Description	Gets the Dictionary Id associated with this session.	
Return	osid.id.Id	the Dictionary Id associated with this session
Compliance	mandatory	This method must be implemented.
Method	getDictionary	
Description	Gets the Dictionary associated with this session.	
Return	osid.dictionary.Dictionary	the Dictionary associated with this session
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	canSearchEntries	
Description	Tests if this user can perform dictionary entry searches. A return of true does not guarantee successful authorization. A return of false indicates that it is known all methods in this session will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer search operations to unauthorized users.	
Return	boolean	false if search methods are not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	useFederatedDictionaryView	
Description	Federates the view for methods in this session. A federated view will include entries from descendant dictionaries in the catalog hierarchy.	
Compliance	mandatory	This method is must be implemented.
Method	useIsolatedDictionaryView	
Description	Isolates the view for methods in this session. An isolated view restricts notifications for entries to this dictionary only.	
Compliance	mandatory	This method is must be implemented.
Method	getEntryQuery	
Description	Gets an entry query interface.	
Return	osid.dictionary.EntryQuery	the entry query
Compliance	mandatory	This method must be implemented.

Method	getEntriesByQuery	
Description	Gets a list of Entry elements matching the given search interface.	
Parameters	osid.dictionary.EntryQuery	entryQuery
Return	osid.dictionary.EntryList	the returned EntryList
Errors	NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED UNSUPPORTED	entryQuery is null unable to complete request authorization failure entryQuery is not of this service
Compliance	mandatory	This method must be implemented.
Method	getEntrySearch	
Description	Gets an entry search interface. This interface offers various options to restrict or order the search results. The returned interface does not have a search interface extension. <code>getEntrySearchForType()</code> should be used if a typed extension is required.	
Return	osid.dictionary.EntrySearch	the entry search interface
Compliance	mandatory	This method must be implemented.
Method	getEntrySearchOrder	
Description	Gets an entry search order interface. The EntrySearchOrder is supplied to a EntrySearch to specify the ordering of results.	
Return	osid.dictionary.EntrySearchOrder	the entry search order interface
Compliance	mandatory	This method must be implemented.
Method	getEntriesBySearch	
Description	Gets a list of Entry elements matching the given search interface.	
Parameters	osid.dictionary.EntryQuery	entryQuery
	osid.dictionary.EntrySearch	entrySearch
Return	osid.dictionary.EntrySearchResults	the returned search results
Errors	NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED UNSUPPORTED	entryQuery or entrySearch is null unable to complete request authorization failure entrySearch or entryQuery is not of this service
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.EntryAdminSession	
Implements	osid.OsidSession	
Description	EntryAdminSession defines an interface to create, update and delete dictionary entrees.	
Method	getDictionaryId	
Description	Gets the Dictionary Id associated with this session.	
Return	osid.id.Id	the Dictionary Id associated with this session
Compliance	mandatory	This method must be implemented.
Method	getDictionary	
Description	Gets the Dictionary associated with this session.	
Return	osid.dictionary.Dictionary	the Dictionary associated with this session
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	canCreateEntries	
Description	Tests if this user can create entries A return of true does not guarantee successful authorization. A return of false indicates that it is known creating an Entry will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer create operations to an unauthorized user.	
Return	boolean	false if entry creation is not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	canCreateEntryWithTypes	
Description	Tests if this user can create a single Entry using the desired types.	
Parameters	osid.type.Type	keyType
	osid.type.Type	entryType
Return	boolean	true if Entry creation using the specified Types is supported, false otherwise
Errors	NULL_ARGUMENT	keyType or entryType is null
Compliance	mandatory	This method must be implemented.
Method	createEntry	
Description	Creates a new Dictionary entry with the given key and value.	
Parameters	object	key
	osid.type.Type	keyType
	object	value
	osid.type.Type	valueType
Return	osid.dictionary.Entry	the created entry
Errors	ALREADY_EXISTS	an entry by this key, keyType and valueType already exists.
	INVALID_ARGUMENT	key is not of keyType or value is not of valueType
	NULL_ARGUMENT	null argument provided
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
	UNSUPPORTED	DictionarManager.supportsEntryTypes(keyType, valueType) is false
Compliance	mandatory	This method must be implemented.

Method	canUpdateEntries		
Description	Tests if this user can update entries. A return of true does not guarantee successful authorization. A return of false indicates that it is known updating an Entry will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer update operations to an unauthorized user.		
Return	boolean		false if entry modification is not authorized, true otherwise
Compliance	mandatory		This method must be implemented.
Method	updateEntry		
Description	Updates an existing Dictionary entry identified with the specified key with the given value.		
Parameters	object	key	the key of the entry
	osid.type.Type	keyType	the type of key
	object	value	the new value of the entry
	osid.type.Type	valueType	the type of value
Errors	INVALID_ARGUMENT		key is not of keyType or value is not of valueType
	NOT_FOUND		entry is not found
	NULL_ARGUMENT		null argument provided
	OPERATION_FAILED		unable to complete request
	PERMISSION_DENIED		authorization failure
Compliance	mandatory		This method must be implemented.
Method	canDeleteEntries		
Description	Tests if this user can delete Entries. A return of true does not guarantee successful authorization. A return of false indicates that it is known deleting an Entry will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer delete operations to an unauthorized user.		
Return	boolean		false if Entry deletion is not authorized, true otherwise
Compliance	mandatory		This method must be implemented.
Method	deleteEntry		
Description	Updates an existing Dictionary entry identified with the specified key with the given value.		
Parameters	object	key	the key of the entry
	osid.type.Type	keyType	the type of key
	osid.type.Type	valueType	the type of value
	INVALID_ARGUMENT		key is not of keyType
Errors	NOT_FOUND		key not found
	NULL_ARGUMENT		key or keyType or valueType is null
	OPERATION_FAILED		unable to complete request
	PERMISSION_DENIED		authorization failure
Compliance	mandatory		This method must be implemented.

Interface	osid.dictionary.EntryNotificationSession	
Implements	osid.OsidSession	
Description	This session defines methods to receive notifications on adds/changes to Entry objects within a Dictionary. This session is intended for consumers needing to synchronize their state with this service without the use of polling. Notifications are cancelled when this session is closed.	
Method	getDictionaryId	
Description	Gets the Dictionary Id associated with this session.	
Return	osid.id.Id	the Dictionary Id associated with this session
Compliance	mandatory	This method must be implemented.
Method	getDictionary	
Description	Gets the Dictionary associated with this session.	
Return	osid.dictionary.Dictionary	the Dictionary associated with this session
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	canRegisterForEntryNotifications	
Description	Tests if this user can register for Entry notifications. A return of true does not guarantee successful authorization. A return of false indicates that it is known all methods in this session will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer notification operations.	
Return	boolean	false if notification methods are not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	useFederatedDictionaryView	
Description	Federates the view for methods in this session. A federated view will include entries from parent dictionaries in the dictionary hierarchy.	
Compliance	mandatory	This method is must be implemented.
Method	useIsolatedDictionaryView	
Description	Isolates the view for methods in this session. An isolated view restricts notifications for entries to this dictionary only.	
Compliance	mandatory	This method is must be implemented.
Method	registerForNewEntries	
Description	Registers for notifications of new entries. EntryReceiver.newEntry(key, keyType) is invoked when a new Entry is created.	
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	registerForChangedEntries	
Description	Registers for notification of updated entries. EntryReceiver.changedEntry(key, keyType) is invoked when an Entry is changed.	
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.

Method	registerForChangedEntry				
Description	Registers for notifications of an update to an Entry. EntryReceiver.changedEntry(key, keyType) is invoked when the specified Entry is changed.				
Parameters	object	key	the entry key		
	osid.type.Type	keyInterfaceType	the entry key type		
	osid.type.Type	valueInterfaceType	the entry key type		
Errors	NOT_FOUND	entry not found			
	NULL_ARGUMENT	key or keyType is null			
	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authorization failure			
Compliance	mandatory	This method must be implemented.			
Method	registerForDeletedEntries				
Description	Registers for notification of deleted dictionaries. EntryReceiver.deletedEntry(key, keyType) is invoked when the specified Entry is deleted.				
Errors	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authorization failure			
Compliance	mandatory	This method must be implemented.			
Method	registerForDeletedEntry				
Description	Registers for notifications of a deleted Entry. EntryReceiver.deletedEntry(key, keyType) is invoked when the specified Entry is deleted.				
Parameters	object	key	the entry key		
	osid.type.Type	keyInterfaceType	the entry key interface type		
	osid.type.Type	valueInterfaceType	the entry key interface type		
Errors	NOT_FOUND	entry not found			
	NULL_ARGUMENT	key, keyInterfaceType or valueInterfaceType is null			
	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authorization failure			
Compliance	mandatory	This method must be implemented.			

Interface	osid.dictionary.DictionaryLookupSession	
Implements	osid.OsidSession	
Description	<p>This session provides methods for retrieving Dictionary objects. The Dictionary represents a collection of key/value entries.</p> <p>This session defines two views which offer differing behaviors when retrieving multiple objects.</p> <ul style="list-style-type: none"> • comparative view: elements may be silently omitted or re-ordered • plenary view: provides a complete and ordered result set or is an error condition <p>Generally, the comparative view should be used for most applications as it permits operation even if there is data out of sync. For example, a hierarchy output can be plugged into a lookup method to retrieve all objects known to a hierarchy, but it may not be necessary to break execution if a node from the hierarchy no longer exists. However, some administrative applications may need to know whether it had retrieved an entire set of objects and may sacrifice some interoperability for the sake of precision.</p>	
Method	canAccessDictionaries	
Description	Tests if this user can perform Dictionary lookups. A return of true does not guarantee successful authorization. A return of false indicates that it is known all methods in this session will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer lookup operations to unauthorized users.	
Return	boolean	false if lookup methods are not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	useComparativeDictionaryView	
Description	The returns from the lookup methods may omit or translate elements based on this session, such as authorization, and not result in an error. This view is used when greater interoperability is desired at the expense of precision.	
Compliance	mandatory	This method is must be implemented.
Method	usePlenaryDictionaryView	
Description	A complete view of the Dictionary returns is desired. Methods will return what is requested or result in an error. This view is used when greater precision is desired at the expense of interoperability.	
Compliance	mandatory	This method is must be implemented.
Method	getDictionary	
Description	Gets the Dictionary specified by its Id. In plenary mode, the exact Id is found or a NOT_FOUND results. Otherwise, the returned Dictionary may have a different Id than requested, such as the case where a duplicate Id was assigned to a Dictionary and retained for compatibility.	
Parameters	osid.id.Id	dictionaryId the Id of the Dictionary to retrieve
Return	osid.dictionary.Dictionary	the Dictionary
Errors	NOT_FOUND NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED	no Dictionary found with the given Id Id is null unable to complete request authorization failure
Compliance	mandatory	This method must be implemented.

Method	getDictionariesByIds	
Description	Gets a DictionaryList corresponding to the given IdList. In plenary mode, the returned list contains all of the dictionaries specified in the Id list, in the order of the list, including duplicates, or an error results if an Id in the supplied list is not found or inaccessible. Otherwise, inaccessible Dictionary elements may be omitted from the list and may present the elements in any order including returning a unique set.	
Parameters	osid.id.IdList	dictionaryIdList the list of Ids to retrieve
Return	osid.dictionary.DictionaryList	the returned Dictionary list
Errors	NOT_FOUND NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED	an Id was not found dictionaryIdList is null unable to complete request authorization failure
Compliance	mandatory	This method must be implemented.
Method	getDictionariesByGenusType	
Description	Gets a DictionaryList corresponding to the given dictionary genus Type which does not include dictionaries of genus types derived from the specified Type. In plenary mode, the returned list contains all known dictionaries or an error results. Otherwise, the returned list may contain only those dictionaries that are accessible through this session. In both cases, the order of the set is not specified.	
Parameters	osid.type.Type	dictionaryGenusType a dictionary genus type
Return	osid.dictionary.DictionaryList	the returned Dictionary list
Errors	NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED	dictionaryGenusType is null unable to complete request authorization failure
Compliance	mandatory	This method must be implemented.
Method	getDictionariesByParentGenusType	
Description	Gets a DictionaryList corresponding to the given dictionary genus Type and include any additional dictionaries with genus types derived from the specified Type. In plenary mode, the returned list contains all known dictionaries or an error results. Otherwise, the returned list may contain only those dictionaries that are accessible through this session. In both cases, the order of the set is not specified.	
Parameters	osid.type.Type	dictionaryGenusType a dictionary genus type
Return	osid.dictionary.DictionaryList	the returned Dictionary list
Errors	NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED	dictionaryGenusType is null unable to complete request authorization failure
Compliance	mandatory	This method must be implemented.
Method	getDictionariesByRecordType	
Description	Gets a DictionaryList containing the given dictionary record Type. In plenary mode, the returned list contains all known dictionaries or an error results. Otherwise, the returned list may contain only those dictionaries that are accessible through this session. In both cases, the order of the set is not specified.	
Parameters	osid.type.Type	dictionaryRecordType a dictionary record type
Return	osid.dictionary.DictionaryList	the returned Dictionary list
Errors	NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED	dictionaryRecordType is null unable to complete request authorization failure
Compliance	mandatory	This method must be implemented.

Method	getDictionaries	
Description	Gets all Dictionary elements. In plenary mode, the returned list contains all known dictionaries or an error results. Otherwise, the returned list may contain only those dictionaries that are accessible through this session. In both cases, the order of the set is not specified.	
Return	osid.dictionary.DictionaryList	a list of dictionaries
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionarySearchSession	
Implements	osid.OsidSession	
Description	<p>This session provides methods for searching Dictionary objects. The search query is constructed using the DictionaryQuery interface. The dictionary interface Type also specifies the interface for the dictionary query.</p> <p>getDictionariesByQuery() is the basic search method and returns a list of Dictionary elements. A more advanced search may be performed with getDictionaresBySearch(). It accepts a DictionarySearch interface in addition to the query interface for the purpose of specifying additional options affecting the entire search, such as ordering. getDictionariesBySearch() returns a DictionarySearchResults interface that can be used to access the resulting DictionaryList or be used to perform a search within the result set through DictionarySearch.</p> <p>Dictionaries may have a record query interface indicated by their respective record types. The record query interface is accessed via the DictionaryQuery.</p>	
Method	canSearchDictionaries	
Description	Tests if this user can perform Dictionary searches. A return of true does not guarantee successful authorization. A return of false indicates that it is known all methods in this session will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer search operations to unauthorized users.	
Return	boolean	false if search methods are not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	getDictionaryQuery	
Description	Gets a dictionary query interface.	
Return	osid.dictionary.DictionaryQuery	the dictionary query
Compliance	mandatory	This method must be implemented.
Method	getDictionariesByQuery	
Description	Gets a list of Dictionary elements matching the given query.	
Parameters	osid.dictionary.DictionaryQuery dictionaryQuery	the search query
Return	osid.dictionary.DictionaryList	the returned DictionaryList
Errors	<p>NULL_ARGUMENT dictionaryQuery is null</p> <p>OPERATION_FAILED unable to complete request</p> <p>PERMISSION_DENIED authorization failure</p> <p>UNSUPPORTED dictionaryQuery is not of this service</p>	
Compliance	mandatory	This method must be implemented.
Method	getDictionarySearch	
Description	Gets a dictionary search interface.	
Return	osid.dictionary.DictionarySearch	the dictionary search interface
Compliance	mandatory	This method must be implemented.
Method	getDictionarySearchOrder	
Description	Gets a dictionary search order interface. The DictionarySearchOrder is supplied to a DictionarySearch to specify the ordering of results.	
Return	osid.dictionary.DictionarySearchOrder	the dictionary search order interface
Compliance	mandatory	This method must be implemented.

Method	getDictionariesBySearch		
Description	Gets the search results matching the given search query using the given search.		
Parameters	osid.dictionary.DictionaryQuery	dictionaryQuery	the search query
	osid.dictionary.DictionarySearch	dictionarySearch	the search interface
Return	osid.dictionary.DictionarySearchResults		the returned search results
Errors	NULL_ARGUMENT		dictionaryQuery or dictionarySearch is null
	OPERATION_FAILED		unable to complete request
	PERMISSION_DENIED		authorization failure
	UNSUPPORTED		dictionarySearch or dictionaryQuery is not of this service
Compliance	mandatory		This method must be implemented.

Interface	osid.dictionary.DictionaryAdminSession	
Implements	osid.OsidSession	
Description	DictionaryAdminSession defines an interface to create, update and delete Dictionary objects.	
Method	canCreateDictionaries	
Description	Tests if this user can create Dictionaries. A return of true does not guarantee successful authorization. A return of false indicates that it is known creating a Dictionary will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer create operations to an unauthorized user.	
Return	boolean	false if Dictionary creation is not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	canCreateDictionaryWithRecordTypes	
Description	Tests if this user can create a single Dictionary using the desired record types. While DictionaryManager.getDictionaryRecordTypes() can be used to examine which records are supported, this method tests which record(s) are required for creating a specific Dictionary. Providing an empty array tests if a Dictionary can be created with no records.	
Parameters	osid.type.Type[] dictionaryRecordTypes	array of types
Return	boolean	true if Dictionary creation using the specified record Types is supported, false otherwise
Errors	NULL_ARGUMENT	dictionaryRecordTypes is null
Compliance	mandatory	This method must be implemented.
Method	getDictionaryFormForCreate	
Description	Gets the dictionary form for creating new dictionaries. A new form should be requested for each create transaction.	
Return	osid.dictionary.DictionaryForm	the dictionary form
Compliance	mandatory	This method must be implemented.
Method	createDictionary	
Description	Creates a new Dictionary.	
Parameters	osid.dictionary.DictionaryForm[] dictionaryForms	the forms for this new Dictionary
Return	osid.dictionary.Dictionary	the new Dictionary
Errors	ALREADY_EXISTS	attempt to add a Dictionary when one by that name or unique property already exists
	INVALID_ARGUMENT	the caisson contains an invalid value
	NULL_ARGUMENT	dictionaryForms is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
	UNSUPPORTED	a dictionaryForm is not supported
Compliance	mandatory	This method must be implemented.
Method	canUpdateDictionaries	
Description	Tests if this user can update Dictionaries. A return of true does not guarantee successful authorization. A return of false indicates that it is known updating a Dictionary will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer update operations to an unauthorized user.	
Return	boolean	false if Dictionary modification is not authorized, true otherwise
Compliance	mandatory	This method must be implemented.

Method	canUpdateDictionary				
Description	Tests if this user can update a specified Dictionary. A return of true does not guarantee successful authorization. A return of false indicates that it is known updating the Dictionary will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer update operations to an unauthorized user.				
Parameters	osid.id.Id	dictionaryId	the Id of the dictionary		
Return	boolean				
Errors	NULL_ARGUMENT				
Compliance	mandatory				
Provider Notes	If the dictionaryId is not found, then it is acceptable to return false to indicate the lack of an update available.				
Method	getDictionaryFormForUpdate				
Description	Gets the dictionary form for updating an existing dictionary. A new dictionary form should be requested for each update transaction.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary		
Return	osid.dictionary.DictionaryForm				
Errors	NOT_FOUND	dictionaryId is not found			
	NULL_ARGUMENT	dictionaryId is null			
	OPERATION_FAILED	unable to complete request			
Compliance	mandatory				
Method	updateDictionary				
Description	Updates an existing dictionary.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to update		
	osid.dictionary.DictionaryForm				
Errors	INVALID_ARGUMENT	the form contains an invalid value			
	NOT_FOUND	dictionaryId not found			
	NULL_ARGUMENT	dictionaryForm or dictionaryId is null			
	OPERATION_FAILED	unable to complete request			
	PERMISSION_DENIED	authorization failure			
	UNSUPPORTED	dictionaryForm is not supported			
Compliance	mandatory				
Method	canDeleteDictionaries				
Description	Tests if this user can delete Dictionaries. A return of true does not guarantee successful authorization. A return of false indicates that it is known deleting a Dictionary will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer delete operations to an unauthorized user.				
Return	boolean				
Compliance	mandatory				
Method	canDeleteDictionary				
Description	Tests if this user can delete a specified Dictionary. A return of true does not guarantee successful authorization. A return of false indicates that it is known deleting the Dictionary will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer delete operations to an unauthorized user.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary		
Return	boolean				
Errors	NULL_ARGUMENT	configId is null			
Compliance	mandatory				
Provider Notes	If the dictionaryId is not found, then it is acceptable to return false to indicate the lack of an delete available.				

Method	deleteDictionary				
Description	Deletes a Dictionary.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to delete		
Errors	NOT_FOUND		dictionaryId not found		
	NULL_ARGUMENT		dictionaryId is null		
	OPERATION_FAILED		unable to complete request		
	PERMISSION_DENIED		authorization failure		
Compliance	mandatory	This method must be implemented.			
Method	addIdToDictionary				
Description	Adds an Id to a Dictionary for the purpose of creating compatibility. The primary Id of the Dictionary is determined by the provider. The new Id performs as an alias to the primary Id.				
Parameters	osid.id.Id	dictionaryId	the Id of an Dictionary		
Errors	osid.id.Id	aliasId	the alias Id		
	ALREADY_EXISTS		aliasId is already assigned		
	NOT_FOUND		dictionaryId not found		
	NULL_ARGUMENT		dictionaryId or aliasId is null		
	OPERATION_FAILED		unable to complete request		
Compliance	PERMISSION_DENIED		authorization failure		
	mandatory	This method must be implemented.			

Interface	osid.dictionary.DictionaryNotificationSession	
Implements	osid.OsidSession	
Description	This session defines methods to receive notifications on adds/changes to Dictionary objects. This session is intended for consumers needing to synchronize their state with this service without the use of polling. Notifications are cancelled when this session is closed.	
Method	canRegisterForDictionaryNotifications	
Description	Tests if this user can register for Dictionary notifications. A return of true does not guarantee successful authorization. A return of false indicates that it is known all methods in this session will result in a PERMISSION_DENIED. This is intended as a hint to an application that may opt not to offer notification operations.	
Return	boolean	false if notification methods are not authorized, true otherwise
Compliance	mandatory	This method must be implemented.
Method	registerForNewDictionaries	
Description	Register for notifications of new dictionaries. DictionaryReceiver.newDictionary() is invoked when a new Dictionary is created.	
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	registerForNewDictionaryAncestors	
Description	Registers for notification of an updated hierarchy structure that introduces a new ancestor of the specified dictionary. DictionaryReceiver.newAncestorDictionary() is invoked when the specified dictionary node gets a new ancestor.	
Parameters	osid.id.Id	dictionaryId
	NOT_FOUND	a dictionary node was not found identified by the given Id
Errors	NULL_ARGUMENT	dictionaryId is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	registerForNewDictionaryDescendants	
Description	Registers for notification of an updated hierarchy structure that introduces a new descendant of the specified dictionary. DictionaryReceiver.newDescendantDictionary() is invoked when the specified dictionary node gets a new descendant.	
Parameters	osid.id.Id	dictionaryId
	NOT_FOUND	a dictionary node was not found identified by the given Id
Errors	NULL_ARGUMENT	dictionaryId is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.
Method	registerForChangedDictionaries	
Description	Registers for notification of updated dictionaries. DictionaryReceiver.changedDictionary() is invoked when a dictionary is changed.	
Errors	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure
Compliance	mandatory	This method must be implemented.

Method	registerForChangedDictionary				
Description	Registers for notification of an updated dictionary. DictionaryReceiver.changedDictionary() is invoked when the specified dictionary is changed. A notification may be triggered for any updated, deleted or new dictionary the specified dictionary inherits data from.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to monitor		
Errors	NOT_FOUND		a Dictionary was not found identified by the given Id		
	NULL_ARGUMENT		dictionaryId is null		
	OPERATION_FAILED		unable to complete request		
	PERMISSION_DENIED		authorization failure		
Compliance	mandatory	This method must be implemented.			
Method	registerForDeletedDictionaries				
Description	Registers for notification of deleted dictionaries. DictionaryReceiver.deletedDictionary() is invoked when a dictionary is deleted.				
Errors	OPERATION_FAILED		unable to complete request		
	PERMISSION_DENIED		authorization failure		
Compliance	mandatory	This method must be implemented.			
Method	registerForDeletedDictionary				
Description	Registers for notification of a deleted dictionary. DictionaryReceiver.changedDictionary() is invoked when the specified dictionary is changed.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to monitor		
Errors	NOT_FOUND		a Dictionary was not found identified by the given Id		
	NULL_ARGUMENT		dictionaryId is null		
	OPERATION_FAILED		unable to complete request		
	PERMISSION_DENIED		authorization failure		
Compliance	mandatory	This method must be implemented.			
Method	registerForDeletedDictionaryAncestors				
Description	Registers for notification of an updated hierarchy structure that removes an ancestor of the specified dictionary. DictionaryReceiver.deletedAncestor() is invoked when the specified dictionary node loses an ancestor.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to monitor		
Errors	NOT_FOUND		a Dictionary was not found identified by the given Id		
	NULL_ARGUMENT		dictionaryId is null		
	OPERATION_FAILED		unable to complete request		
	PERMISSION_DENIED		authorization failure		
Compliance	mandatory	This method must be implemented.			
Method	registerForDeletedDictionaryDescendants				
Description	Registers for notification of an updated hierarchy structure that removes a descendant of the specified dictionary. DictionaryReceiver.deletedDescendant() is invoked when the specified dictionary node loses a descendant.				
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to monitor		
Errors	NOT_FOUND		a Dictionary was not found identified by the given Id		
	NULL_ARGUMENT		dictionaryId is null		
	OPERATION_FAILED		unable to complete request		
	PERMISSION_DENIED		authorization failure		
Compliance	mandatory	This method must be implemented.			

Interface	osid.dictionary.DictionaryHierarchySession	
Implements	osid.hierarchy.HierarchyTraversalSession	
Description	<p>This session defines methods for traversing a hierarchy of Dictionary objects. Each node in the hierarchy is a unique Dictionary. The hierarchy may be traversed recursively to establish the tree structure through <code>getParents()</code> and <code>getChildren()</code>. To relate these Ids to another OSID, <code>getAncestors()</code> and <code>getDescendants()</code> can be used for retrievals that can be used for bulk lookups in other OSIDs. Any Dictionary available in the Dictionary OSID is known to this hierarchy but does not appear in the hierarchy traversal until added as a root node or a child of another node.</p> <p>A user may not be authorized to traverse the entire hierarchy. Parts of the hierarchy may be made invisible through omission from the returns of <code>getParents()</code> or <code>getChildren()</code> in lieu of a <code>PERMISSION_DENIED</code> error that may disrupt the traversal through authorized pathways.</p> <p>This session defines views that offer differing behaviors when retrieving multiple objects.</p> <ul style="list-style-type: none"> • comparative view: dictionary elements may be silently omitted or re-ordered • plenary view: provides a complete set or is an error condition 	
Method	useComparativeDictionaryView	
Description	The returns from the dictionary methods may omit or translate elements based on this session, such as authorization, and not result in an error. This view is used when greater interoperability is desired at the expense of precision.	
Compliance	mandatory	This method is must be implemented.
Method	usePlenaryDictionaryView	
Description	A complete view of the Dictionary returns is desired. Methods will return what is requested or result in an error. This view is used when greater precision is desired at the expense of interoperability.	
Compliance	mandatory	This method is must be implemented.
Method	getRootDictionaries	
Description	Gets the root subjects in the dictionary hierarchy. A node with no parents is an orphan. While all dictionary Ids are known to the hierarchy, an orphan does not appear in the hierarchy unless explicitly added as a root node or child of another node.	
Return	osid.dictionary.DictionaryList	the root dictionaries
Errors	OPERATION_FAILED PERMISSION_DENIED	unable to complete request authorization failure
Compliance	mandatory	This method is must be implemented.
Method	getParentDictionaries	
Description	Gets the parent dictionaries of the given id.	
Parameters	osid.id.Id	dictionaryId the Id of the Dictionary to query
Return	osid.dictionary.DictionaryList	the parent dictionaries of the id
Errors	NOT_FOUND NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED	a Dictionary identified by Id is not found dictionaryId is null unable to complete request authorization failure
Compliance	mandatory	This method must be implemented.

Method	getAncestorDictionaries		
Description	Gets the ancestor dictionaries of the given id.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to query
	cardinal	levels	the maximum number of levels to include. A value of 1 returns the same set as getParentDictionaries().
Return	osid.dictionary.DictionaryList		the ancestor dictionaries of the id
Errors	NOT_FOUND		a Dictionary identified by Id is not found
	NULL_ARGUMENT		dictionaryId is null
	OPERATION_FAILED		unable to complete request
	PERMISSION_DENIED		authorization failure
Compliance	mandatory		This method must be implemented.
Method	getChildDictionaries		
Description	Gets the child dictionaries of the given id.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to query
Return	osid.dictionary.DictionaryList		the child dictionaries of the id
Errors	NOT_FOUND		a Dictionary identified by Id is not found
	NULL_ARGUMENT		dictionaryId is null
	OPERATION_FAILED		unable to complete request
	PERMISSION_DENIED		authorization failure
Compliance	mandatory		This method must be implemented.
Method	getDescendantDictionaries		
Description	Gets the descendant dictionaries of the given id.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary to query
	cardinal	levels	the maximum number of levels to include. A value of 1 returns the same set as getChildDictionaries().
Return	osid.dictionary.DictionaryList		the decsendant dictuonaries of the id
Errors	NOT_FOUND		a Dictionary identified by Id is not found
	NULL_ARGUMENT		dictionaryId is null
	OPERATION_FAILED		unable to complete request
	PERMISSION_DENIED		authorization failure
Compliance	mandatory		This method must be implemented.

Interface	osid.dictionary.DictionaryHierarchyDesignSession
Implements	osid.hierarchy.HierarchyDesignSession
Description	This session manages a hierarchy of dictionaries. Dictionary objects may be organized into a hierarchy for organizing or federating. A parent Dictionary includes all of the entries of its children such that a single root node contains all of the entries of the federation.

Interface	osid.dictionary.Entry	
Implements		
Description	An Entry contains a key and a value. The key and value have a Type such that an entry is identified by the combination of the key, key type, and value type. The Type may indicate the key and value are simple strings or, more complex objects may be managed that allows for a translation from one arbitrary object to another.	
Method	getKeyType	
Description	Gets the Type of this entry key.	
Return	osid.type.Type	the key Type
Compliance	mandatory	This method must be implemented.
Method	getKey	
Description	Gets the key of this entry.	
Return	object	the key
Compliance	mandatory	This method must be implemented.
Method	getValueType	
Description	Gets the Type of this entry value.	
Return	osid.type.Type	the value Type
Compliance	mandatory	This method must be implemented.
Method	getValue	
Description	Gets the value in this entry.	
Return	object	the value
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.EntryQuery				
Implements					
Description	This is the query interface for searching dictionary entries. Each method specifies an AND term while multiple invocations of the same method produce a nested OR.				
Method	getStringMatchTypes				
Description	Gets the string matching types supported.				
Return	osid.type.TypeList	a list containing the supported string match types			
Compliance	mandatory	This method must be implemented.			
Method	supportsStringMatchType				
Description	Tests if the given string matching type is supported.				
Parameters	osid.type.Type	searchType	a Type indicating a string match type		
Return	boolean	true if the given Type is supported, false otherwise			
Compliance	mandatory	This method must be implemented.			
Method	matchKeyword				
Description	Adds a keyword to match among the key and value.				
Parameters	string	keyword	a keyword		
	osid.type.Type	stringMatchType	the string match type		
Errors	boolean	match	true if the keyword is a positive match, false for negative match		
	INVALID_ARGUMENT		keyword is not of stringMatchType		
	NULL_ARGUMENT		keyword or stringMatchType is null		
Compliance	UNSUPPORTED		supportsStringMatchType(stringMatchType) is false		
	mandatory		This method must be implemented.		
Method	matchKeyType				
Description	Sets the Type for querying keys of a given type.				
Parameters	osid.type.Type	keyType	the key Type		
	boolean	match	true if the key type is a positive match, false for negative match		
Errors	NULL_ARGUMENT		keyType is null		
Compliance	mandatory		This method must be implemented.		
Method	matchKey				
Description	Matches entries of this key.				
Parameters	object	key	the key		
	boolean	match	true if the key is a positive match, false for negative match		
Errors	NULL_ARGUMENT		keyType is null		
Compliance	mandatory		This method must be implemented.		
Method	matchValueType				
Description	Sets the Type of this entry value.				
Parameters	osid.type.Type	valueType	the value Type		
	boolean	match	true if the value type is a positive match, false for negative match		
Errors	NULL_ARGUMENT		valueType is null		
Compliance	mandatory		This method must be implemented.		

Method	matchValue		
Description	Sets the value in this entry.		
Parameters	object	value	the value
	boolean	match	true if the value is a positive match, false for negative match
Errors	NULL_ARGUMENT		value is null
Compliance	mandatory		This method must be implemented.
Method	matchDictionaryId		
Description	Sets the dictionary Id for this query.		
Parameters	osid.id.Id	dictionaryId	a dictionary Id
	boolean	match	true if a positive match, false for negative match
Errors	NULL_ARGUMENT		dictionaryId is null
Compliance	mandatory		This method must be implemented.
Method	supportsDictionaryQuery		
Description	Tests if a DictionaryQuery is available.		
Return	boolean		true if a dictionary query interface is available, false otherwise
Compliance	mandatory		This method must be implemented.
Method	getDictionaryQuery		
Description	Gets the query interface for a dictionary. Multiple retrievals produce a nested boolean OR term.		
Return	osid.dictionary.DictionaryQuery		the dictionary query
Errors	UNIMPLEMENTED		supportsDictionaryQuery() is false
Compliance	optional		This method must be implemented if supportsDictionaryQuery() is true.

Interface	osid.dictionary.EntrySearchOrder	
Implements		
Description	This interface specifies options for ordering search results.	
Method	orderByKeyType	
Description	Specifies a preference for ordering the results by key type.	
Compliance	mandatory	This method must be implemented.
Method	orderByKey	
Description	Specifies a preference for ordering the results by key.	
Compliance	mandatory	This method must be implemented.
Method	orderByValueType	
Description	Specifies a preference for ordering the results by value type.	
Compliance	mandatory	This method must be implemented.
Method	orderByValue	
Description	Specifies a preference for ordering the results by value.	
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.EntrySearch		
Implements			
Description	This interface specifies options for governing entry searches.		
Method	limitResultSet		
Description	By default, searches return all matching results. This method restricts the number of results by setting the start and end of the result set, starting from 1. The starting and ending results can be used for paging results when a certain ordering is requested. The ending position must be greater than the starting position.		
Parameters	cardinal	start	the start of the result set
	cardinal	end	the end of the result set
Errors	INVALID_ARGUMENT		end is less than or equal to start
Compliance	mandatory		This method must be implemented.
Method	hasSearchRecordType		
Description	Tests if this search supports the given record Type. The given record type may be supported by the object through interface/type inheritance. This method should be checked before retrieving the record interface.		
Parameters	osid.type.Type	searchRecordType	a type
Return	boolean		true if a search record the given record Type is available, false otherwise
Errors	NULL_ARGUMENT		searchRecordType is null
Compliance	mandatory		This method must be implemented.
Method	searchWithinEntryResults		
Description	Execute this search using a previous search result.		
Parameters	osid.dictionary.EntrySearchResults	results	results from a query
Errors	INVALID_ARGUMENT	results is not valid	
	NULL_ARGUMENT	results is null	
Compliance	mandatory		This method must be implemented.
Method	searchAmongEntries		
Description	Execute this search among the given list of entries.		
Parameters	osid.dictionary.EntryList	entries	list of entries
Errors	NULL_ARGUMENT	entries is null	
Compliance	mandatory		This method must be implemented.
Method	orderEntryResults		
Description	Specify an ordering to the search results.		
Parameters	osid.dictionary.EntrySearchOrder	entrySearchOrder	entry searchgh order
Errors	NULL_ARGUMENT	entrySearchOrder is null	
	UNSUPPORTED	entrySearchOrder is not of this service	
Compliance	mandatory		This method must be implemented.
Method	getEntrySearchRecord		
Description	Gets the record corresponding to the given entry search record Type. This method must be used to retrieve an object implementing the requested record interface along with all of its ancestor interfaces.		
Parameters	osid.type.Type	entrySearchRecordType	an entry search record type
Return	osid.dictionary.EntrySearch		the entry search interface
Errors	NULL_ARGUMENT	entrySearchRecordType is null	
	OPERATION_FAILED	unable to complete request	
	PERMISSION_DENIED	authorization failure occurred	
	UNSUPPORTED	hasSearchRecordType(entrySearchRecordType) is false	
Compliance	mandatory		This method must be implemented.

Interface	osid.dictionary.EntrySearchRecord	
Implements	osid.OsidSearchRecord	
Description	A record for an EntrySearch. The methods specified by the record type are available through the underlying object.	
getEntrySearch		
Description	Gets the EntrySearch from which this record originated.	
Return	osid.dictionary.EntrySearch	the entry search
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.EntrySearchResults	
Implements	osid.OsidSearchResults	
Description	This interface provides a means to capture results of a search and is used as a vehicle to perform a search within a previous result set. This example gets a result set from a keyword match.	
Method	getEntries	
Description	Gets the entry list resulting from the search.	
Return	osid.dictionary.EntryList	the entry list
Compliance	mandatory	This method must be implemented.
Method	getEntrySearchResultsInterface	
Description	Gets the record corresponding to the given entry search record Type. This method must be used to retrieve an object implementing the requested record interface along with all of its ancestor interfaces.	
Parameters	osid.type.Type	entrySearchRecordType
	an entry search record type	
Return	osid.dictionary.EntrySearchResults	the entry results record
Errors	NULL_ARGUMENT	entrySearchRecordType is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure occurred
	UNSUPPORTED	hasSearchRecordType(entrySearchRecordType) is false
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.EntryReceiver		
Implements	osid.OsidReceiver		
Description	The dictionary entry receiver is the consumer supplied interface for receiving notifications pertaining to new, updated or deleted Entry objects.		
Method	newEntry		
Description	The callback for notifications of new dictionary entries.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary
	object	key	the key of the new entry
	osid.type.Type	keyType	the key type of the new entry
	osid.type.Type	valueType	the value type of the new entry
Compliance	mandatory		This method must be implemented.
Method	changedEntry		
Description	The callback for notification of updated dictionary entries.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary
	object	key	the key of the updated entry
	osid.type.Type	keyType	the key type of the updated entry
	osid.type.Type	valueType	the value type of the updated entry
Compliance	mandatory		This method must be implemented.
Method	deletedEntry		
Description	the callback for notification of deleted dictionary entries.		
Parameters	osid.id.Id	dictionaryId	the Id of the Dictionary
	object	key	the key of the deleted entry
	osid.type.Type	keyType	the key type of the deleted entry
	osid.type.Type	valueType	the value type of the updated entry
Compliance	mandatory		This method must be implemented.

Interface	osid.dictionary.EntryList	
Implements	osid.OsidList	
Description	<p>Like all OsidLists, EntryList provides a means for accessing Entry elements sequentially either one at a time or many at a time. Examples:</p> <pre>while (el.hasNext()) { Entry entry = el.getNextEntry(); }</pre> <p>or</p> <pre>while (el.hasNext()) { Entry[] entries = el.getNextEntries(el.available()); }</pre>	
Method	getNextEntry	
Description	Gets the next Entry in this list.	
Return	osid.dictionary.Entry	the next Entry in this list. The hasNext() method should be used to test that a next Entry is available before calling this method.
Errors	ILLEGAL_STATE OPERATION_FAILED	no more elements available in this list unable to complete request
Compliance	mandatory	This method must be implemented.
Method	getNextEntries	
Description	Gets the next set of Entry elements in this list which must be less than or equal to the number returned from available().	
Parameters	cardinal	n
Return	osid.dictionary.Entry[]	an array of Entry elements. The length of the array is less than or equal to the number specified.
Errors	ILLEGAL_STATE OPERATION_FAILED	no more elements available in this list unable to complete request
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.Dictionary	
Implements	osid.OsidCatalog	
Description	<p>A Dictionary represents a collection of entries. Like all OSID objects, a Dictionary is identified by its Id and any persisted references should use the Id.</p> <p><code>getDictionaryRecord()</code> should be used to retrieve the record corresponding to this Type.</p>	
getDictionaryRecord		
Description	Gets the record corresponding to the given Dictionary record Type. This method must be used to retrieve an object implementing the requested record interface along with all of its ancestor interfaces. The dictionaryRecordType may be the Type returned in <code>getRecordTypes()</code> or any of its parents in a Type hierarchy where <code>hasRecordType(dictionaryRecordType)</code> is true.	
Parameters	osid.type.Type	dictionaryRecordType the type of the record to retrieve
Return	osid.dictionary.DictionaryRecord	the dictionary with the specified record
Errors	NULL_ARGUMENT	dictionaryRecordType is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure occurred
	UNSUPPORTED	<code>hasRecordType(dictionaryRecordType)</code> is false
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionaryRecord	
Implements	osid.OsidRecord	
Description	A record for a Dictionary. The methods specified by the record type are available through the underlying object.	
getDictionary		
Description	Gets the Dictionary from which this record originated.	
Return	osid.dictionary.Dictionary	the dictionary
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionaryQuery	
Implements	osid.OsidCatalogQuery	
Description	This is the query interface for searching dictionaries. Each method specifies an AND term while multiple invocations of the same method produce a nested OR.	
Method	supportsEntryQuery	
Description	Tests if an EntryQuery is available.	
Return	boolean	true if an entry query interface is available, false otherwise
Compliance	mandatory	This method must be implemented.
Method	getEntryQuery	
Description	Gets the query interface for an entry. Multiple retrievals produce a nested boolean OR term.	
Return	osid.dictionary.EntryQuery	the entry query
Errors	UNIMPLEMENTED	<code>supportsEntryQuery()</code> is false
Compliance	optional	This method must be implemented if <code>supportsEntryQuery()</code> is true.
Method	getDictionaryQueryRecord	
Description	Gets the record query interface corresponding to the given Dictionary record Type. Multiple retrievals produce a nested boolean OR term.	
Parameters	osid.type.Type dictionaryRecordType	a dictionary record type
Return	osid.dictionary.DictionaryQueryRecord	the dictionary query record
Errors	NULL_ARGUMENT	<code>dictionaryRecordType</code> is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure occurred
	UNSUPPORTED	<code>hasRecordType(dictionaryRecordType)</code> is false
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionaryQueryRecord	
Implements	osid.OsidRecord	
Description	A record for a DictionaryQuery. The methods specified by the record type are available through the underlying object.	
getDictionaryQuery		
Description	Gets the DictionaryQuery from which this record originated.	
Return	osid.dictionary.DictionaryQuery	the dictionary query
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionaryForm									
Implements	osid.OsidCatalogForm									
Description	This is the form for creating and updating a Dictionary. Like all OsidForm objects, various data elements may be set here for use in the create and update methods in the DictionaryAdminSession. For each data element that may be set, metadata may be examined to provide display hints or data constraints.									
Method	getDictionaryFormRecord									
Description	Gets the DictionaryFormRecord interface corresponding to the given dictionary record interface Type.									
Parameters	osid.type.Type	dictionaryRecordType a dictionary record type								
Return	osid.dictionary.DictionaryFormRecord	the record								
Errors	<table> <tr> <td>NULL_ARGUMENT</td> <td>dictionaryRecordType is null</td> </tr> <tr> <td>OPERATION_FAILED</td> <td>unable to complete request</td> </tr> <tr> <td>PERMISSION_DENIED</td> <td>authorization failure occurred</td> </tr> <tr> <td>UNSUPPORTED</td> <td>hasRecordType(dictionaryRecordType) is false</td> </tr> </table>		NULL_ARGUMENT	dictionaryRecordType is null	OPERATION_FAILED	unable to complete request	PERMISSION_DENIED	authorization failure occurred	UNSUPPORTED	hasRecordType(dictionaryRecordType) is false
NULL_ARGUMENT	dictionaryRecordType is null									
OPERATION_FAILED	unable to complete request									
PERMISSION_DENIED	authorization failure occurred									
UNSUPPORTED	hasRecordType(dictionaryRecordType) is false									
Compliance	mandatory	This method must be implemented.								

Interface	osid.dictionary.DictionaryFormRecord	
Implements	osid.OsidRecord	
Description	A record for a DictionaryForm. The methods specified by the record type are available through the underlying object.	
getDictionaryForm		
Description	Gets the DictionaryForm from which this record originated.	
Return	osid.dictionary.DictionaryForm	the dictionary form
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionarySearchOrder	
Implements	osid.OsidCatalogSearchOrder	
Description	An interface for specifying the ordering of search results.	
Method	getDictionarySearchOrderRecord	
Description	Gets the dictionary search order record corresponding to the given dictionary record Type. Multiple retrievals return the same underlying object.	
Parameters	osid.type.Type	dictionaryRecordType a dictionary record type
Return	osid.dictionary.DictionarySearchOrderRecord	the dictionary search order record interface
Errors	NULL_ARGUMENT	dictionaryRecordType is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure occurred
	UNSUPPORTED	hasRecordType(dictionaryRecordType) is false
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionarySearchOrderRecord	
Implements	osid.OsidRecord	
Description	A record for a DictionarySearchOrder. The methods specified by the record type are available through the underlying object.	
getDictionarySearchOrder		
Description	Gets the DictionarySearchOrder from which this record originated.	
Return	osid.dictionary.DictionarySearchOrder	the dictionary search order
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionarySearch	
Implements	osid.OsidSearch	
Description	This interface defines search options.	
Method	searchWithinDictionaryResults	
Description	Execute this search using a previous search result.	
Parameters	osid.dictionary.DictionarySearchResults	results
		results from a query
Errors	INVALID_ARGUMENT	results is not valid
	NULL_ARGUMENT	results is null
Compliance	mandatory	This method must be implemented.
Method	searchAmongDictionaries	
Description	Execute this search among the given list of dictionaries.	
Parameters	osid.id.IdList	dictionaryIds
		list of dictionaries
Errors	NULL_ARGUMENT	dictionaryIds is null
Compliance	mandatory	This method must be implemented.
Method	orderDictionaryResults	
Description	Specify an ordering to the search results.	
Parameters	osid.dictionary.DictionarySearchOrder	dictionarySearchOrder
		dictionary search order
Errors	NULL_ARGUMENT	dictionarySearchOrder is null
	UNSUPPORTED	dictionarySearchOrder is not of this service
Compliance	mandatory	This method must be implemented.
Method	getDictionarySearchRecord	
Description	Gets the record corresponding to the given dictionary search record Type. This method must be used to retrieve an object implementing the requested record interface along with all of its ancestor interfaces.	
Parameters	osid.type.Type	dictionarySearchRecordType
		a dictionary search record type
Return	osid.dictionary.DictionarySearchRecord	
		the dictionary search interface
Errors	NULL_ARGUMENT	dictionarySearchRecordType is null
	OPERATION_FAILED	unable to complete request
	PERMISSION_DENIED	authorization failure occurred
	UNSUPPORTED	hasSearchRecordType(dictionarySearchRecordType) is false
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionarySearchRecord	
Implements	osid.OsidSearchRecord	
Description	A record for a DictionarySearch. The methods specified by the record type are available through the underlying object.	
getDictionarySearch		
Description	Gets the DictionarySearch from which this record originated.	
Return	osid.dictionary.DictionarySearch	the dictionary search
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionarySearchResults	
Implements	osid.OsidSearchResults	
Description	This interface provides a means to capture results of a search and is used as a vehicle to perform a search within a previous result set. This example gets a result set from a keyword match.	
Method	getDictionaries	
Description	Gets the dictionary list resulting from the search.	
Return	osid.dictionary.DictionaryList	the dictionary list
Compliance	mandatory	This method must be implemented.
Method	getDictionarySearchResultsRecord	
Description	Gets the record corresponding to the given dictionary search record Type. This method must be used to retrieve an object implementing the requested record interface along with all of its ancestor interfaces.	
Parameters	osid.type.Type	dictionarySearchRecordType a dictionary search record type
Return	osid.dictionary.DictionarySearchResultsRecord	the dictionary search interface
Errors	NULL_ARGUMENT OPERATION_FAILED PERMISSION_DENIED UNSUPPORTED	dictionarySearchRecordType is null
		unable to complete request
		authorization failure occurred
		hasSearchRecordType(dictionarySearchRecordType) is false
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionarySearchResultsRecord	
Implements	osid.OsidSearchRecord	
Description	A record for a DictionarySearchResults. The methods specified by the record type are available through the underlying object.	
	getDictionarySearchResults	
Description	Gets the DictionarySearchResults from which this record originated.	
Return	osid.dictionary.DictionarySearchResults	the dictionary search results
Compliance	mandatory	This method must be implemented.

Interface	osid.dictionary.DictionaryReceiver				
Implements	osid.OsidReceiver				
Description	The dictionary receiver is the consumer supplied interface for receiving notifications pertaining to new, updated or deleted Dictionary objects.				
Method	newDictionary				
Description	The callback for notifications of new dictionaries.				
Parameters	osid.id.Id	dictionaryId	the Id of the new Dictionary		
Compliance	mandatory	This method must be implemented.			
Method	newAncestorDictionary				
Description	The callback for notifications of new ancestors of a dictionary.				
Parameters	osid.id.Id	dictionaryId	the Id of the registered Dictionary		
	osid.id.Id	ancestorId	the Id of the new ancestor dictionary		
Compliance	mandatory	This method must be implemented.			
Method	newDescendantDictionary				
Description	The callback for notifications of new descendant of a dictionary.				
Parameters	osid.id.Id	dictionaryId	the Id of the registered Dictionary		
	osid.id.Id	descendantId	the Id of the new descendant dictionary		
Compliance	mandatory	This method must be implemented.			
Method	changedDictionary				
Description	The callback for notification of updated dictionaries.				
Parameters	osid.id.Id	dictionaryId	the Id of the updated Dictionary		
Compliance	mandatory	This method must be implemented.			
Method	deletedDictionary				
Description	the callback for notification of deleted dictionaries.				
Parameters	osid.id.Id	dictionaryId	the Id of the deleted Dictionary		
Compliance	mandatory	This method must be implemented.			
Method	deletedAncestorDictionary				
Description	The callback for notifications of deleted ancestors of a dictionary.				
Parameters	osid.id.Id	dictionaryId	the Id of the registered Dictionary		
	osid.id.Id	ancestorId	the Id of the removed ancestor dictionary		
Compliance	mandatory	This method must be implemented.			
Method	deletedDescendantDictionary				
Description	The callback for notifications of deleted descendants of a dictionary.				
Parameters	osid.id.Id	dictionaryId	the Id of the registered Dictionary		
	osid.id.Id	descendantId	the Id of the deleted descendant dictionary		
Compliance	mandatory	This method must be implemented.			

Interface	osid.dictionary.DictionaryList	
Implements	osid.OsidList	
Description	<p>Like all OsidLists, DictionaryList provides a means for accessing Dictionary elements sequentially either one at a time or many at a time. Examples:</p> <pre>while (dl.hasNext()) { Dictionary dictionary = dl.getNextEntry(); }</pre> <p>or</p> <pre>while (dl.hasNext()) { Dictionary[] dictionaries = dl.getNextEntries(dl.available()); }</pre>	
Method	getNextDictionary	
Description	Gets the next Dictionary in this list.	
Return	osid.dictionary.Dictionary	the next Dictionary in this list. The hasNext() method should be used to test that a next Dictionary is available before calling this method.
Errors	ILLEGAL_STATE OPERATION_FAILED	no more elements available in this list unable to complete request
Compliance	mandatory	This method must be implemented.
Method	getNextDictionaries	
Description	Gets the next set of Dictionary objects in this lis which must be less than or equal to whst is returned from available().	
Parameters	cardinal	n
Return	osid.dictionary.Dictionary[]	an array of Dictionary elements. The length of the array is less than or equal to the number specified.
Errors	ILLEGAL_STATE OPERATION_FAILED	no more elements available in this list unable to complete request
Compliance	mandatory	This method must be implemented.