

[MS-UPSAUD]: User Profile Service Audiences Protocol Specification

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1 Introduction

The User Profile Service Audiences protocol covers management of sets of users (**audiences**) stored in the protocol server store. Audiences allow protocol clients to target content to users based upon selected criteria about the users. For example, an audience could include users who are members of a specific **distribution list** or server group, users who are in a specific organizational reporting structure, or users whose public properties have certain values.

1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

Coordinated Universal Time (UTC)
GUID
Security Support Provider Interface (SSPI)

The following terms are defined in [\[MS-OFCGLOS\]](#):

audience
audience compilation
audience identifier
audience rule
collation order
display name
distribution list
e-mail address
result set
return code
Shared Services Provider (SSP)
site
site identifier
stored procedure
Structured Query Language (SQL)
Transact-Structured Query Language (T-SQL)
user profile

The following terms are specific to this document:

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as described in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MSDN-TSQL-Ref] Microsoft Corporation, "Transact-SQL Reference", [http://msdn.microsoft.com/en-us/library/ms189826\(SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms189826(SQL.90).aspx)

[MS-SQL] Microsoft Corporation, "SQL Server 2000 Architecture and XML/Internet Support", Volume 1 of Microsoft SQL Server 2000 Reference Library, Microsoft Press, 2001, ISBN 0-7356-1280-3, [http://msdn.microsoft.com/en-us/library/dd631854\(v=SQL.10\).aspx](http://msdn.microsoft.com/en-us/library/dd631854(v=SQL.10).aspx)

[MS-TDS] Microsoft Corporation, "[Tabular Data Stream Protocol Specification](#)".

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.rfc-editor.org/rfc/rfc2119.txt>

[XML10] World Wide Web Consortium, "Extensible Markup Language (XML) 1.0 (Third Edition)", February 2004, <http://www.w3.org/TR/REC-xml>

[XMLINFOSET] World Wide Web Consortium, "XML Information Set (Second Edition)", February 2004, <http://www.w3.org/TR/2004/REC-xml-infoset-20040204>

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, December 2009, <http://www.w3.org/TR/2009/REC-xml-names-20091208/>

[XMLSCHEMA1] Thompson, H.S., Ed., Beech, D., Ed., Maloney, M., Ed., and Mendelsohn, N., Ed., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/>

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>

1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)".

[MS-OFCGLOS] Microsoft Corporation, "[Microsoft Office Master Glossary](#)".

1.3 Protocol Overview (Synopsis)

This protocol allows protocol clients to create, modify, refresh and delete audiences from a store on the protocol server, as well as retrieve the audience members of a particular audience. In addition, the protocol allows protocol clients to begin, suspend, and cancel **audience compilation** on the protocol server.

Figure 1 shows the operations and data flow between the protocol client and protocol server.

The **Add Audience** operation adds an audience to the store on the protocol server. The **Get All Audiences** operation retrieves summary information for all the audiences in the store on the protocol server. The **Get An Audience** operation retrieves detailed information about a given audience from the store on the protocol server. The **Modify Rule** operation updates the **audience rule** of the audience in the store on the protocol server. The **Get Members** operation retrieves the list of audience members for a given audience from the store on the protocol server. The **Refresh Members** operation refreshes the audience members of each audience in the store on the protocol server. The **Remove Audience** operation removes an audience from the store on the protocol server.

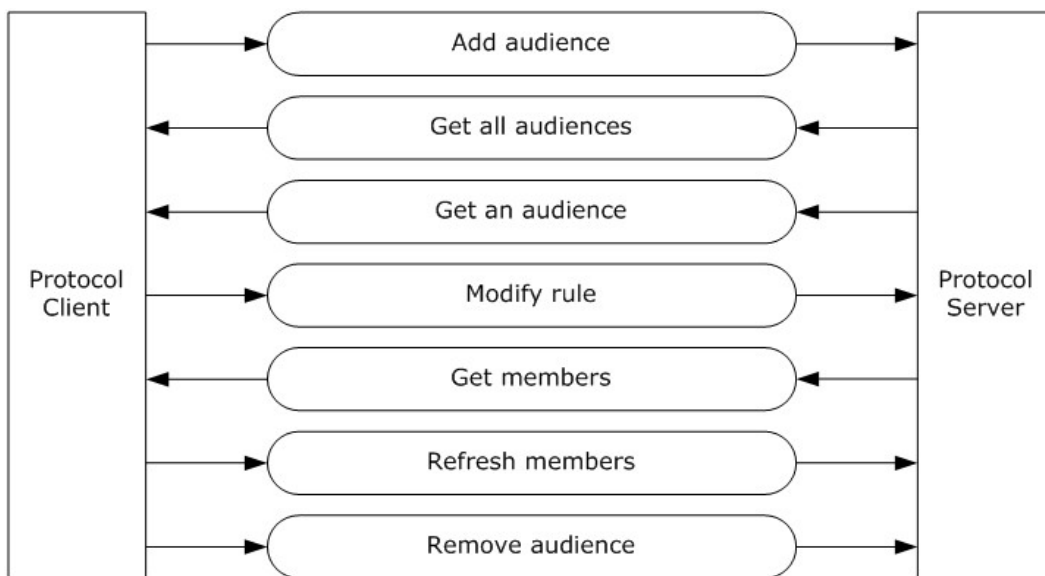


Figure 1: Operations and data flow diagram

1.4 Relationship to Other Protocols

The following diagram shows the transport stack for this protocol and the relationship to other protocols:

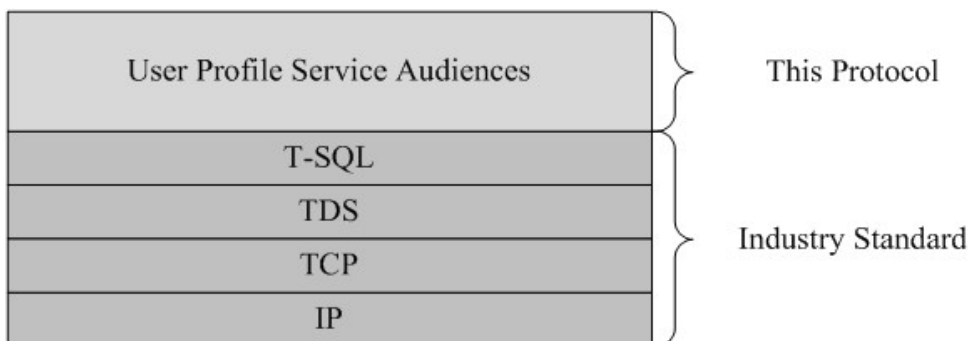


Figure 2: This protocol in relation to other protocols

1.5 Prerequisites/Preconditions

The operations described by this protocol operate between a protocol client and a protocol server. The client is expected to have the location and connection information for the required databases on the protocol server.

This protocol requires the protocol client to have appropriate permissions to call the **stored procedures** in the required databases on the protocol server.

1.6 Applicability Statement

The User Profile Service Audiences protocol is designed to be used only by the client protocols listed in section [1.4](#).

1.7 Versioning and Capability Negotiation

Security and Authentication Methods: This protocol supports the **Security Support Provider Interface (SSPI)** and **SQL** authentication with the protocol server role specified in [\[MS-TDS\]](#).

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

[MS-TDS] specifies the transport protocol used to call the stored procedures, query SQL tables, get **return codes**, and return **result sets**.

2.2 Common Data Types

The following table summarizes the types that are defined in this specification.

Type Name	Base Data Type	Description
AudienceGroupType	smallint	Describes the logical grouping of the test conditions defining an audience rule.

2.2.1 Simple Data Types and Enumerations

None.

2.2.2 AudienceGroupType

AudienceGroupType describes the logical grouping of the test conditions defining an audience rule. The value MUST be in the following table:

Value	Description
0; 1	Audience rule uses only logical OR grouping. Any one test condition needs to be satisfied for the audience rule to be satisfied.
2	Audience rule uses only logical AND grouping. Each test condition needs to be satisfied for the audience rule to be satisfied.
3	Audience rule uses both logical OR and logical AND grouping. The test conditions need be evaluated using standard precedence-based order of evaluation to determine if the audience rule is satisfied.

3 Protocol Details

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

3.1 Protocol Server Details

3.1.1 Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

The protocol requires that the protocol server be capable of storing the definition of multiple audiences, including the definition of the audience rule for each audience rule. The protocol requires that the protocol server be capable of returning the set of audience members for each audience, as determined by evaluating the audience rule against the set of all existing **user profiles**, along with metadata defining when the set of audience members was evaluated.

The protocol server can choose to evaluate the audience members on demand when the protocol client requests that data or it can choose to precompute the audience members and cache the results to be returned when the protocol client requests that data. For protocol servers that cache the audience members, the protocol supports a mechanism the protocol client can use to guarantee that the cache of audience members for any audience is recomputed based on the state of the server store data at that moment. The protocol server can still update the cache of audience members at any point thereafter; the protocol merely guarantees that the set of audience members is at least as current as the most recent time the recomputation mechanism was invoked.

For protocol servers which cache the audience members, the protocol additionally supports tracking information the protocol client can use to determine how frequently they might choose to recompute the cached audience members for any given audience. The protocol client can use this support to schedule periodic refreshes of the protocol server caches for each relevant audience, as appropriate. The protocol does not require the protocol client to use this mechanism, it is fully optional.

The following sections explain what kind of data the protocol server is expected to store when implementing this protocol.

3.1.1.1 Audience Data

The protocol server stores information about audiences. The data stored for each audience include:

- **Name:** The audience name of each audience.
- **ID:** The **audience identifier** of each audience.
- **Description:** The description of each audience.
- **Owner:** The audience owner of each audience.
- **Rule:** The audience rule for each audience.

- **MemberList:** The set of audience members of each audience.
- **LastCompilationTime:** The **UTC** time of the most recent audience compilation of each audience.
- **LockStatus:** The status of the audience compilation lock of each audience.

3.1.1.2 Removed Audience Data

The protocol server stores information about removed audiences which were audiences on the server but have been removed. The data stored for each removed audience include:

- **Name:** The audience name of each removed audience.
- **ID:** The audience identifier of each removed audience.
- **Description:** The description of each removed audience.
- **Owner:** The audience owner of each removed audience.
- **RemovalTime:** The UTC time when the removed audience was created. Matches the time at which the corresponding audience was removed.

3.1.1.3 Audience Rule Data

The protocol server stores information defining each audience rule associated with an audience. The data stored for each audience rule include:

- **Rule:** The logical conditions which define the test through which each user profile is evaluated to determine if it SHOULD be included as an audience member of the audience.

The definition of each audience rule MUST adhere to the following strict syntax to be valid within the protocol.

An audience rule is composed of a set of subrules and the logical operators and grouping operators connecting those subrules together. Each subrule defines a single test to evaluate in the context of a user profile. The audience rule MUST conform to the following ABNF [RFC4234] specification:

```
AudienceRule = StmtList

StmtList = Rule / StmtList LogicOperator StmtList / GroupStmtList

GroupStmtList = GroupStart StmtList GroupEnd

LogicOperator = LogicalAnd / LogicalOr
```

When logically evaluating the audience rule, the **LogicalAnd** terminal corresponds to a normal logical AND binary operator. The **LogicalOr** terminal corresponds to a normal logical short circuiting OR binary operator. The **GroupStart** terminal and the **GroupEnd** terminal correspond to standard logical grouping operators used to indicate order of operation precedence. Neither the **LogicalAnd** operator nor the **LogicalOr** operator has precedence; therefore the audience rule evaluation is in standard left-to-right logical precedence order and respects any logical grouping operators.

The protocol supports a fixed variety of tests of which a single one can be performed against a user profile in any given **Rule**. The details of each supported test are explained in the following section:

3.1.1.3.1 Rule Data

Each **Rule** MUST conform to the following ABNF [RFC4234] specification:

```
Rule = UserRule / PropertyRule

UserRule = UserReportsUnderRule / UserMemberOfRule

UserReportsUnderRule = "Reports Under" UserProfileValue

UserMemberOfRule = "Member of" DistributionListValue

PropertyRule = DatePropertyRule / StringPropertyRule / BitPropertyRule /
UniqueIdentifierPropertyRule / NumberPropertyRule / HtmlPropertyRule

DatePropertyRule = PropertyName DatePropertyOperator DateValue

DatePropertyOperator = "=" / NOT "=" / ">" / ">=" / "<" / "<="

StringPropertyRule = PropertyName StringPropertyOperator StringValue

StringPropertyOperator = "=" / NOT "=" / "Contains" / NOT "Contains"

BitPropertyRule = PropertyName BitPropertyOperator BitValue

BitPropertyOperator = "=" / NOT "="

UniqueIdentifierPropertyRule = PropertyName UniqueIdentifierPropertyOperator
UniqueIdentifierValue

UniqueIdentifierPropertyOperator = "=" / NOT "="

NumberPropertyRule = PropertyName NumberPropertyOperator NumberValue

NumberPropertyOperator = "=" / NOT "=" / ">" / ">=" / "<" / "<="

HtmlPropertyRule = PropertyName HtmlPropertyOperator HtmlValue

HtmlPropertyOperator = "Contains" / NOT "Contains"
```

Each **PropertyName** corresponds to a user profile property name in the protocol server store.

As shown in the ABNF [RFC4234] specification in this section, there are a total of eight operators available for use in each **Rule**. There are five standard logical operators, "=", ">", ">=", "<", and "<=", which correspond to the standard equals, greater than, greater than or equal, less than, and less than or equal logical operations.

The "Contains" operator indicates a standard substring match condition that is satisfied if the full string property value includes the test value as a substring. The "Reports Under" operator indicates a condition where all user profiles that are in the reporting hierarchy of the test value user profile satisfy the condition. The "Member of" operator indicates a condition where all user profiles that are distribution list members of the test value distribution list satisfy the condition.

Two of the operators negate the results of the condition by using **NOT** in front of the operator. Both the equality "=" operator and the substring "Contains" operator support negating the results of the condition.

3.1.1.4 Audience Compilation Job Data

Audience compilation is the task performed by the protocol server to compute the set of audience members for a specific audience. The protocol server can choose to perform audience compilation on demand when the protocol client requests the set of audience members or it can choose to precompute the audience members and return the cached results when the client requests the set of audience members. The protocol client can manually request that the cached audience members be refreshed by calling a specific method. Protocol clients can choose to periodically request that the caches are updated and the protocol includes several methods to help the protocol client track when it last requested audience compilation to be performed by the protocol server. The protocol client can use these methods to control an audience compilation job to iterate over the audiences and request audience compilation be performed by the protocol server on each audience the protocol client deems necessary.

To support the protocol client working with the protocol server to manage the audience compilation task, the protocol server stores information tracking the status of the audience compilation job being performed by the protocol client. The pieces of data stored for the audience compilation job include:

- **LastStartTime:** The UTC time at which the audience compilation job was started.
- **LastEndTime:** The UTC time at which the audience compilation job finished.
- **InProgress:** Status indicating whether or not the audience compilation job is currently running.
- **ErrorLog:** The set of recorded errors encountered while the audience compilation job was running along with the UTC times that each error was recorded.

3.1.2 Timers

None.

3.1.3 Initialization

Before using this protocol, a connection that uses the underlying protocol layers specified in section [1.4](#), Relationship to Other Protocols, MUST be established as specified in [\[MS-TDS\]](#).

3.1.4 Message Processing Events and Sequencing Rules

This section describes the following stored procedures:

Procedure Name	Description
Orgle_AddRemoveOrgleName	Adds an audience to the store or removes an audience from the store.
Orgle_RemoveOrgle	Removes an audience from the store.
Orgle_UpdateOrgleName	Updates the persisted properties of an audience in the store.
Orgle_GetOrgleRules	Gets the audience rule for an audience in the store.
Orgle_UpdateOrgleRules	Updates the audience rule for particular audiences in the store.
Orgle_RunOrgleRules	Invokes audience compilation for an audience in the store.
Orgle_GetOrgleMembers	Gets the set of audience members of an audience.

Procedure Name	Description
Orgle_MemberOfAudience	Identifies whether a specified user profile is an audience member of an audience specified by an identifier.
Orgle_MemberOfAudienceByName	Identifies whether a specified user profile is an audience member of an audience specified by name.
Orgle_SearchMember	Gets the set of audience members of an audience that match specified criteria.
Orgle_SearchOrgle	Gets the set of audiences in the store that match specified criteria.
Audience_SearchAudienceAndDL	Gets the set of audiences and distribution lists in the store that match specified criteria.
Orgle_GetUserOrgleList	Gets the set of audiences of which a specified user profile is an audience member.
Orgle_GetOverallStats	Gets information about the status of the audiences store.
Orgle_GetOrgleNamesFromIDs	Gets summary information about a set of audiences specified by audience identifiers.
Orgle_GetOrgleOperatorList	Gets the set of logical operators usable in an audience rule.
Orgle_GetOrgleSiteList	Gets the set of sites that have associated audiences in the store.
Orgle_GetEveryoneString	Gets the localized string value for the English string 'User'.
Orgle_GetOrgleDetail	Gets information about a particular audience in the store.
Orgle_GetOrgleList	Gets the set of all audiences in the store using a specified collation order.
Orgle_GetOrgleListAll	Gets the set of all audiences in the store.
Orgle_Job_Start	Records the beginning of the audience compilation job.
Orgle_Job_Stop	Records the cancellation of the audience compilation job.
Orgle_Job_End	Records the completion of the audience compilation job.
Orgle_Job_Continue	Queries the tracking data of the audience compilation job to determine if it is currently running.
Orgle_Job_ErrorLog	Records the error state associated with the audience compilation job.
Orgle_job_Lock	Enables the audience compilation lock of a particular audience.
Orgle_job_UnLock	Disables the audience compilation lock of a particular audience.

3.1.4.1 Orgle_AddRemoveOrgleName

The **Orgle_AddRemoveOrgleName** stored procedure is invoked to either add a new audience to the protocol server store or to remove an existing audience from the protocol server store.

Orgle_AddRemoveOrgleName is defined using **T-SQL** syntax, as follows:

```

PROCEDURE Orgle_AddRemoveOrgleName (
    @OrgleName          nvarchar(500),
    @OrgleDescription    nvarchar(1500) = NULL,
    @OwnerAccountName    nvarchar(400) = NULL,
    @SiteGUID            uniqueidentifier,
    @bCentral            bit,
    @bPublic             bit = 0,
    @bRemove             bit = 0,
    @GroupType           smallint = 0,
    @bDebug              bit = 0
);

```

@OrgleName: The audience name of the audience to add or remove. The value **MUST** be unique across all the audience names of the existing audiences in the protocol server store. The value **MUST NOT** be set to NULL.

@OrgleDescription: The description of the audience. If the value of the *@bRemove* parameter is 1, this parameter is ignored and its value **MUST** be set to NULL.

@OwnerAccountName: The user profile account name of the audience owner. If the value of the *@bRemove* parameter is 1, this parameter is ignored and its value **MUST** be set to NULL.

@SiteGUID: The value **MUST** be set to the **Shared Services Provider (SSP)** administration **site identifier**.

@bCentral: Reserved. The value **MUST NOT** be set to NULL.

@bPublic: Reserved. The value **MUST NOT** be set to NULL.

@bRemove: This specifies the operation performed on the protocol server store by this stored procedure. The value **MUST** be in the following table:

Value	Description
0	The operation creates a new audience in the protocol server store.
1	The operation removes an existing audience from the protocol server store and creates a corresponding removed audience in the protocol server store.

@GroupType: This indicates the logical grouping of the test conditions defining the audience rule for the audience. The value **MUST** be an **AudienceGroupType** data type as described in section [2.2.2](#).

@bDebug: The value **MUST** be set to 0.

Return Code Values: **Orgle_AddRemoveOrgleName** returns an integer return code which **MUST** be set to 0.

Result Sets: **Orgle_AddRemoveOrgleName** **MUST** return exactly one result set. The type of the result set returned is determined by the value of the input *@bRemove* parameter. If the value of the input *@bRemove* parameter is 0, **Orgle_AddRemoveOrgleName** **MUST** return exactly one AddAudience result set; otherwise **Orgle_AddRemoveOrgleName** **MUST** return exactly one RemoveAudience result set.

3.1.4.1.1 AddAudience Result Set

The AddAudience result set returns a state indicating the success or failure of the add operation. The AddAudience result set MUST be returned if the value of the input *@bRemove* parameter is 0 and MUST contain exactly one row. The AddAudience result set is defined using T-SQL syntax, as follows:

```
Error          int,  
OrgleID        uniqueidentifier;
```

Error: A number which MUST be listed in the following table:

Value	Description
<= 0	Successful execution.
3	Error indicating the audience was not added because the input audience name was already in use as an existing audience name in the protocol server store.
1, 2, >= 4	Error indicating the audience was not added because of an unspecified failure.

OrgleID: The audience identifier assigned to the added audience.

3.1.4.1.2 RemoveAudience Result Set

The RemoveAudience result set returns state indicating the success or failure of the removal operation. The RemoveAudience result set MUST be returned if the value of the input *@bRemove* parameter is 1 and MUST contain exactly one row. The RemoveAudience result set is defined using T-SQL syntax, as follows:

```
Error          int,  
OrgleID        uniqueidentifier;
```

Error: A number which MUST be listed in the following table:

Value	Description
0	Successful execution.
1	Error indicating the audience was not removed because the input audience name was not in use as an existing audience name in the protocol server store.
2	Error indicating the audience was not removed because its audience compilation lock was enabled.
<0, >2	Error indicating the audience was not removed because of an unspecified failure.

OrgleID: The audience identifier assigned to the removed audience.

3.1.4.2 Orgle_RemoveOrgle

The **Orgle_RemoveOrgle** stored procedure is invoked to remove an existing audience from the protocol server store and to create a corresponding removed audience in the protocol server store. **Orgle_RemoveOrgle** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_RemoveOrgle (
    @OrgleID          uniqueidentifier
);
```

@OrgleID: The audience identifier assigned to the audience to remove.

Return Code Values: **Orgle_RemoveOrgle** returns an integer return code which MUST be listed in the following table:

Value	Description
0	Successful execution.
1	Error indicating the audience was not removed because the input audience identifier was not in use as an existing audience identifier in the protocol server store.
2	Error indicating the audience was not removed because its audience compilation lock was enabled.
<0, >2	Error indicating the audience was not removed because of an unspecified failure.

Result Sets: **Orgle_RemoveOrgle** MUST NOT return a result set.

3.1.4.3 Orgle_UpdateOrgleName

The **Orgle_UpdateOrgleName** stored procedure is invoked to update the properties of an existing audience in the protocol server store. **Orgle_UpdateOrgleName** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_UpdateOrgleName (
    @OrgleID          uniqueidentifier,
    @OrgleName         nvarchar(200),
    @OrgleDescription  nvarchar(1500) = NULL,
    @OwnerAccountName  nvarchar(400) = NULL,
    @OrgleSiteID       uniqueidentifier,
    @GroupType         smallint = NULL,
    @bDebug            bit = 0
);
```

@OrgleID: The audience identifier assigned to the audience to update.

@OrgleName: The new audience name for the updated audience. If the new audience name is different from the old audience name, the value MUST be unique across all the names of the existing audiences in the protocol server store. The value MUST NOT be set to NULL.

@OrgleDescription: The new description of the audience.

@OwnerAccountName: The new user profile account name of the audience owner.

@OrgleSiteID: The value MUST be set to the SSP administration site identifier.

@GroupType: This indicates the logical grouping of the test conditions defining the audience rule for the audience. If the value is NULL, the protocol server MUST NOT change the existing GroupType property value stored for the audience. If the value is not NULL, the value MUST be set to an **AudienceGroupType** data type as described in section [2.2.2](#).

@bDebug: The value MUST be set to 0.

Return Code Values: **Orgle_UpdateOrgleName** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_UpdateOrgleName** MUST return exactly one UpdateAudience result set.

3.1.4.3.1 UpdateAudience Result Set

The UpdateAudience result set returns a state indicating the success or failure of the update operation. The UpdateAudience result set MUST always be returned and MUST contain exactly one row. The UpdateAudience result set is defined using T-SQL syntax, as follows:

```
Error      int;
```

Error: Contains a number which MUST be listed in the following table:

Value	Description
0	Successful execution.
1	Error indicating the audience was not updated because the input audience identifier was not in use as an existing audience identifier in the protocol server store.
2	Error indicating the audience was not updated because the input audience name was already in use as an existing audience name in the protocol server store.

3.1.4.4 Orgle_GetOrgleRules

The **Orgle_GetOrgleRules** stored procedure is invoked to retrieve the definition of the audience rule for a specific audience. **Orgle_GetOrgleRules** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleRules(  
    @OrgleName          nvarchar(200)  
)  
;
```

@OrgleName: The audience name of the audience whose audience rule definition is to be returned in the result set.

Return Code Values: **Orgle_GetOrgleRules** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOrgleRules** MUST return exactly one AudienceRule result set.

3.1.4.4.1 AudienceRule Result Set

The AudienceRule result set returns the definition of the audience rule of the specified audience. If the input audience name does not match the audience name of an existing audience, the result set MUST be empty. The audience rule definition MUST satisfy the ABNF [RFC4234] constraints for **Audience Rule Data** as described in section [3.1.1.3](#). The result set MUST contain one row for each **Rule**, **GroupStart**, **GroupEnd**, **LogicalAnd** and **LogicalOr** clause in the ABNF representation of the audience rule. The result set rows MUST be ordered from first to last corresponding to the left to right ABNF representation of the audience rule. The AudienceRule result set is defined using T-SQL syntax, as follows:

PropertyName	nvarchar(250),
LeftContent	nvarchar(50),
OrgleOpDisplayName	nvarchar(200),
OrgleOpName	nvarchar(200),
RightContent	nvarchar(2048),
OrderID	int,
bNot	bit;

PropertyName: For **PropertyRules** the value specifies which user profile name is being referenced, otherwise the value MUST be set to NULL.

LeftContent: For **UserReportsUnderRules** the value MUST be set to 'Everyone'. For **UserMemberOfRules** the value MUST be set to 'DL'. For any other **Rule** and all non-**Rules** the value MUST be set to NULL.

OrgleOpDisplayName: The descriptive name of the operator used in the clause, localized in the language of the protocol server store.

OrgleOpName: The unique identifying name of the operator used in the clause.

RightContent: For **Rules** the value specifies the string representation of the value to compare with when evaluating the **Rule**. For non-**Rules** the value MUST be set to NULL.

OrderID: The index of the row in the result set. The result set is ordered on this value.

bNot: This indicates that the clause uses negation logic on its comparison condition. Only **Rules** using the equality "=" operator and the substring "Contains" operator can use negation logic, per the specification in section [3.1.1.3.1](#). For **Rules** which use negation logic, the value MUST be set to 1. For all other **Rules**, the value MUST be set to 0. For all non-**Rules**, the value MUST be set to NULL.

3.1.4.5 Orgle_UpdateOrgleRules

The **Orgle_UpdateOrgleRules** stored procedure is invoked to update the audience rule of a specific audience. **Orgle_UpdateOrgleRules** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_UpdateOrgleRules(  
    @OrgleRuleList      ntext,  
    @Debug              bit = 0  
) ;
```

@OrgleRuleList: An XML document that specifies both the name assigned to the audience to update and the definition of the audience rule for that audience. The XML fragment MUST conform to the following specifications.

The full XML document MUST conform to the following overall schema ([\[XML10\]](#), [\[XMLNS\]](#), [\[XMLINFOSET\]](#), [\[XMLSCHEMA1\]](#), [\[XMLSCHEMA2\]](#)).

```
<xs:schema attributeFormDefault="unqualified"
  elementFormDefault="qualified"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="MSORGLE">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="1" maxOccurs="1" name="ORGLE">
          <xs:complexType>
            <xs:sequence>
              <xs:element maxOccurs="unbounded" name="QUERY">
                <xs:complexType>
                  <xs:simpleContent>
                    <xs:extension base="xs:string">
                      <xs:attribute name="LeftContent"
                        type="xs:string" use="optional" />
                      <xs:attribute name="Property" type="bit"
                        use="optional" />
                      <xs:attribute name="Operator" type="operator"
                        use="optional" />
                      <xs:attribute name="RightContent"
                        type="xs:string" use="optional" />
                      <xs:attribute name="GroupOperator"
                        type="xs:string" use="optional" />
                      <xs:attribute name="bNOT" type="bit"
                        use="optional" />
                    </xs:extension>
                  </xs:simpleContent>
                </xs:complexType>
              </xs:element>
            </xs:sequence>
            <xs:attribute name="OrgleName" type="xs:string"
              use="required" />
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:simpleType name="operator">
    <xs:restriction base="xs:string">
      <xs:enumeration value="=" />
      <xs:enumeration value=">" />
      <xs:enumeration value=">=" />
      <xs:enumeration value="&#60;" />
      <xs:enumeration value="&#60;=" />
      <xs:enumeration value="Contains" />
      <xs:enumeration value="Reports Under" />
      <xs:enumeration value="&#60;>" />
      <xs:enumeration value="Not contains" />
      <xs:enumeration value="Member of" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="bit">
```

```

    <xs:restriction base="xs:integer">
      <xs:minInclusive value="0" />
      <xs:maxInclusive value="1" />
    </xs:restriction>
  </xs:simpleType>
</xs:schema>

```

The value of the **OrgleName** attribute of the **ORGLE** element of the XML fragment specifies the audience name assigned to the audience whose audience rule is to be updated.

The child **QUERY** elements of the **ORGLE** element of the XML fragment together specify the updated definition of the audience rule to store. In addition to conforming to the previous overall schema, the audience rule definition **MUST** satisfy the ABNF [RFC4234] constraints for **Audience Rule Data** as described in section [3.1.1.3](#).

Each **Rule**, **LogicalAnd**, **LogicalOr**, **GroupStart** and **GroupEnd** clause in the ABNF representation of the audience rule **MUST** correspond to a single child **QUERY** element of the **ORGLE** element in the full XML fragment. Those corresponding **QUERY** elements **MUST** be in sequential order matching the left to right ABNF representation of the audience rule.

Each **LogicalAnd** fragment **MUST** conform to the following XML complexType declaration:

```

<xs:complexType name="LogicalAnd">
  <xs:sequence minOccurs="1" maxOccurs="1">
    <xs:element name="QUERY">
      <xs:complexType>
        <xs:attribute name="GroupOperator" type="LogicAnd"
          use="required" />
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="LogicAnd">
  <xs:restriction base="xs:string">
    <xs:enumeration value="AND" />
  </xs:restriction>
</xs:simpleType>

```

Each **LogicalOr** fragment **MUST** conform to the following XML complexType declaration:

```

<xs:complexType name="LogicalOr">
  <xs:sequence minOccurs="1" maxOccurs="1">
    <xs:element name="QUERY">
      <xs:complexType>
        <xs:attribute name="GroupOperator" type="LogicOr"
          use="required" />
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="LogicOr">
  <xs:restriction base="xs:string">
    <xs:enumeration value="OR" />
  </xs:restriction>
</xs:simpleType>

```

Each **GroupStart** fragment MUST conform to the following XML complexType declaration:

```
<xs:complexType name="GroupStart">
  <xs:sequence minOccurs="1" maxOccurs="1">
    <xs:element name="QUERY">
      <xs:complexType>
        <xs:attribute name="GroupOperator" type="LeftParenthesis"
          use="required" />
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="LeftParenthesis">
  <xs:restriction base="xs:string">
    <xs:pattern value="\("/>
  </xs:restriction>
</xs:simpleType>
```

Each **GroupEnd** fragment MUST conform to the following XML complexType declaration:

```
<xs:complexType name="GroupEnd">
  <xs:sequence minOccurs="1" maxOccurs="1">
    <xs:element name="QUERY">
      <xs:complexType>
        <xs:attribute name="GroupOperator" type="RightParenthesis"
          use="required" />
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="RightParenthesis">
  <xs:restriction base="xs:string">
    <xs:pattern value="\)/">
  </xs:restriction>
</xs:simpleType>
```

Each **Rule** fragment MUST conform to the following XML complexType declaration:

```
<xs:complexType name="Rule">
  <xs:sequence minOccurs="1" maxOccurs="1">
    <xs:element name="QUERY">
      <xs:complexType>
        <xs:attribute name="LeftContent" type="xs:string"
          use="required" />
        <xs:attribute name="Property" type="bit" use="required" />
        <xs:attribute name="Operator" type="xs:string"
          use="required" />
        <xs:attribute name="RightContent" type="xs:string"
          use="required" />
        <xs:attribute name="bNOT" type="bit" use="required" />
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

In addition to conforming to the previous schema for **Rule**, the **Rule** definition MUST satisfy the ABNF [RFC4234] constraints for **Rule Data** as described in section 3.1.1.3.1. If the **Rule** is a **UserReportsUnderRule**, the value of the **LeftContent** attribute MUST be set to 'Everyone'. If the **Rule** is a **UserMemberOfRule**, the value of the **LeftContent** attribute MUST be set to 'DL'. If the **Rule** is a **PropertyRule**, the value of the **LeftContent** attribute MUST be set to the user profile name to be evaluated by the **Rule**.

If the **Rule** is a **PropertyRule**, the value of the **Property** attribute MUST be set to 1, otherwise it MUST be set to 0. The value of the **Operator** attribute MUST be set to the string representation of the operator value in the ABNF [RFC4234] representation of the **Rule**. If the negated operator is used in the ABNF representation of the **Rule**, the value of the **bNot** attribute MUST be set to 1, otherwise it MUST be set to 0.

The value of the **RightContent** attribute MUST be set to the string representation of the value to compare with when evaluating the **Rule**.

@Debug: The value MUST be set to 0.

Return Code Values: **Orgle_UpdateOrgleRules** returns an integer return code which MUST be listed in the following table:

Value	Description
0	Successful execution.
NOT 0	Error indicating the audience rule update operation failed. Additional error information is specified in the result set.

Result Sets: **Orgle_UpdateOrgleRules** MUST return exactly one UpdateAudienceRule result set.

3.1.4.5.1 UpdateAudienceRule Result Set

The UpdateAudienceRule result set returns the status of the audience rule update operation. The UpdateAudienceRule result set MUST be returned. The result set MUST contain exactly one row unless there was a problem parsing the input XML, in which case the result set can be empty. The UpdateAudienceRule result set is defined using T-SQL syntax, as follows:

```
OrgleName          nvarchar(200),
XMLOrlgeNameERR    int,
XMLOrgleQueryErr   int,
XMLOrgleOpErr       int,
XMLRulesOverflow    int,
Error               int;
```

OrgleName: The name of the audience whose audience rule was to be updated.

XMLOrlgeNameERR: This specifies whether an audience with the specified audience name was found to update. The value MUST be listed in the following table.

Value	Description
0	The audience with the specified audience name was found.
1	No audience was found with the specified audience name.

XMLOrgleQueryErr: This specifies whether the update failed due to an error evaluating a user profile name associated with the audience rule. The value **MUST** be listed in the following table.

Value	Description
0	No error was encountered evaluating the user profile names associated with the audience rule.
>0	An error was encountered evaluating the user profile names associated with the audience rule.

XMLOrgleOpErr: This specifies whether the update failed due to an error evaluating an audience rule operator. The value **MUST** be listed in the following table.

Value	Description
0	No error was encountered evaluating the operators associated with the audience rule.
>0	An error was encountered evaluating the operators associated with the audience rule.

XMLRulesOverflow: This specifies whether the update failed due to an error encountered because the audience rule definition was too long. The value **MUST** be listed in the following table.

Value	Description
0	No error was encountered due to the length of the definition of the audience rule.
1	An error was encountered due to the length of the definition of the audience rule.

Error: This indicates the overall result of the audience rule update operation. The value **MUST** be listed in the following table.

Value	Description
0	No error. The audience rule of the specified audience was updated successfully.
-1000	Error indicating the update failed because audience compilation lock was enabled on the specified audience.
>0	Error indicating an update failure. The protocol server MUST set at least one of the other error fields in the row (XMLOrgleNameERR , XMLOrgleQueryErr , XMLOrgleOpErr , or XMLRulesOverflow) to a value other than 0.

3.1.4.6 Orgle_RunOrgleRules

The **Orgle_RunOrgleRules** stored procedure is invoked to perform audience compilation for a specified audience.

The stored procedure **MUST** only perform audience compilation while the audience compilation job is in progress. **Orgle_RunOrgleRules** is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_RunOrgleRules (
    @OrgleName          nvarchar(200),
    @ForceRun           bit = 0,
    @LastAudienceStartTime datetime = null,
    @Debug              bit = 0

```


);

@OrgleName: The audience name assigned to the audience to be compiled.

@ForceRun: This indicates whether the stored procedure always performs audience compilation or conditionally performs audience compilation based on the current state of the data in the protocol server store. The value MUST be listed in the following table:

Value	Description
0	Audience compilation MUST be performed conditionally based on the following criteria: <ul style="list-style-type: none">▪ If the specified audience has never had audience compilation performed, then audience compilation MUST be performed.▪ If user profile import has run after the most recent audience compilation on the specified audience, then audience compilation MUST be performed.▪ If the audience rule of the audience has been modified after the most recent audience compilation on the audience, then audience compilation MUST be performed.▪ Otherwise audience compilation for the specified audience SHOULD NOT need to be performed.
1	Audience compilation MUST always be performed for the specified audience.

@LastAudienceStartTime: Reserved.

@Debug: The value MUST be set to 0.

Orgle_RunOrgleRules SHOULD disable the audience compilation lock of the specified audience upon completion of the stored procedure.

Return Code Values: **Orgle_RunOrgleRules** returns an integer return code which MUST be listed in the following table:

Value	Description
0	Successful execution.
1	Error indicating audience compilation failed because the input audience name was not in use as an existing audience name in the protocol server store.
All Other Values	Unspecified failure during audience compilation.

Result Sets: **Orgle_RunOrgleRules** MUST NOT return a result set.

3.1.4.7 Orgle_GetOrgleMembers

The **Orgle_GetOrgleMembers** stored procedure is invoked to get the set of audience members of a specified audience. **Orgle_GetOrgleMembers** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleMembers(  
    @OrgleName          nvarchar(200),  
    @Collation          nvarchar(60),
```

```

        @bDebug                bit = 0
    );

```

@OrgleName: The audience name of the audience whose audience members are returned in the result set.

@Collation: The **collation order** to use for ordering the rows in the result set. The value MUST NOT be set to NULL.

@bDebug: The value MUST be set to 0.

Return Code Values: **Orgle_GetOrgleMembers** returns an integer return code which MUST be listed in the following table:

Value	Description
0	Successful execution.
1	Error indicating the audience members set was not returned because the audience compilation lock was enabled on the specified audience.

Result Sets: **Orgle_GetOrgleMembers** MUST return exactly one AudienceMembers result set.

3.1.4.7.1 AudienceMembers Result Set

The AudienceMembers result set returns the set of audience members of the specified audience. The AudienceMembers result set MUST always be returned and MUST contain one row for each audience member of the specified audience, unless the audience compilation lock is enabled on the specified audience in which case the result set MUST be empty. The AudienceMembers result set is defined using T-SQL syntax, as follows:

```

UserID                uniqueidentifier,
AccountName           nvarchar(400),
PreferredName         nvarchar(400),
Email                 nvarchar(400);

```

UserID: The identifier assigned to the user profile of the audience member.

AccountName: The user profile account name of the audience member.

PreferredName: The **display name** of the audience member.

Email: The user profile e-mail address of the audience member.

3.1.4.8 Orgle_MemberOfAudience

The **Orgle_MemberOfAudience** stored procedure is invoked to determine if a specific user profile is an audience member of a specific audience. **Orgle_MemberOfAudience** is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_MemberOfAudience(
    @NTName             nvarchar(400),

```

```

        @OrgleID                uniqueidentifier
    );

```

@NTName: The user profile account name of the user profile to check.

@OrgleID: The audience identifier assigned to the audience to check.

Return Code Values: **Orgle_MemberOfAudience** returns an integer return code which MUST be listed in the following table:

Value	Description
0	The specified user profile is not an audience member of the specified audience OR the specified audience does not exist in the protocol server store.
1	The specified user profile is an audience member of the specified audience.

Result Sets: **Orgle_MemberOfAudience** MUST NOT return a result set.

3.1.4.9 Orgle_MemberOfAudienceByName

The **Orgle_MemberOfAudienceByName** stored procedure is invoked to determine if a specific user profile is an audience member of a specific audience. **Orgle_MemberOfAudienceByName** is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_MemberOfAudienceByName (
    @NTName                nvarchar(400),
    @OrgleName              nvarchar(200)
);

```

@NTName: The user profile account name of the user profile to check.

@OrgleName: The audience name assigned to the audience to check.

Return Code Values: **Orgle_MemberOfAudienceByName** returns an integer return code which MUST be listed in the following table:

Value	Description
0	The specified user profile is not an audience member of the specified audience OR the specified audience does not exist in the protocol server store.
1	The specified user profile is an audience member of the specified audience.

Result Sets: **Orgle_MemberOfAudienceByName** MUST return exactly one AudienceIdentifier result set.

3.1.4.9.1 AudienceIdentifier Result Set

The AudienceIdentifier result set returns the identifier of the audience whose audience name is specified as the value of the input **@OrgleName** parameter. This result set MUST always be returned and MUST contain exactly one row. The AudienceIdentifier result set is defined using T-SQL syntax, as follows:

```
OrgleID      uniqueidentifier;
```

OrgleID: The identifier of the audience whose audience name was specified as the value of the input **@OrgleName** parameter. If an audience with the specified audience name does not exist in the protocol server store, the value **MUST** be set to **NULL**.

3.1.4.10 Orgle_SearchMember

The **Orgle_SearchMember** stored procedure is invoked to retrieve the subset of audience members of a specific audience who have a specified user profile whose value starts with the input search criteria. **Orgle_SearchMember** allows for searching against the user profile account name, the user profile preferred name, or the user profile e-mail address of each audience member.

Orgle_SearchMember is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_SearchMember(
    @OrgleID                uniqueidentifier,
    @bAccountName           bit,
    @bPreferredName         bit,
    @bEmail                 bit,
    @SearchString            nvarchar(250),
    @TotalRowCount          int OUTPUT
);

```

@OrgleID: The audience identifier assigned to the audience whose audience members are tested for inclusion in the result set.

@bAccountName: If the value is set to 1, the result set MUST include all audience members whose user profile account name matches the input search criteria. If the value is set to 0, the input search criteria are not matched against user profile account names. If the value is set to 1, the value of both *@bPreferredName* and *@bEmail* MUST be set to 0.

@bPreferredName: If the value is set to 1, the result set MUST include all audience members whose user profile preferred name matches the input search criteria. If the value is set to 0, the input search criteria are not matched against user profile preferred names. If the value is set to 1, the value of both *@bAccountName* and *@bEmail* MUST be set to 0.

@bEmail: If the value is set to 1, the result set MUST include all audience members whose user profile e-mail address matches the input search criteria. If the value is set to 0, the input search criteria are not matched against user profile e-mail addresses. If the value is set to 1, the value of both *@bPreferredName* and *@bEmail* MUST be set to 0.

@SearchString: The search criteria to use for comparison with the value of the chosen user profile for each audience member. The user profile to match against is determined by the values of *@bAccountName*, *@bPreferredName* and *@bEmail*. The user profile value is considered a match if it starts with the value of this *@SearchString* parameter.

@TotalRowCount: This returns the number of rows in the result set.

Return Code Values: `Orgle_SearchMember` returns an integer return code which MUST be set to 0.

Result Sets: Orgle_SearchMember MUST return exactly one SearchedMembers result set if the specified audience exists and its audience compilation lock is not enabled, otherwise it MUST NOT return a result set.

3.1.4.10.1 SearchedMembers Result Set

The SearchedMembers result set returns the audience members of the specified audience which match the input search criteria. The SearchedMembers result set MUST always be returned and MUST contain exactly one row for each audience member who matches the input search criteria, unless the audience compilation lock is enabled for the specified audience or the specified audience does not exist in which case the result set MUST be empty. The SearchedMembers result set is defined using T-SQL syntax, as follows:

```
Guid                uniqueidentifier,
NTName              nvarchar(400),
PreferredName       nvarchar(256),
Email               nvarchar(256);
```

Guid: The identifier assigned to the user profile of the audience member.

NTName: The user profile account name of the audience member.

PreferredName: The user profile preferred name of the audience member.

Email: The user profile e-mail address of the audience member.

3.1.4.11 Orgle_SearchOrgle

The **Orgle_SearchOrgle** stored procedure is invoked to gather a set of audiences whose audience names begin with a specific search string. The full set of all matches MAY be large, therefore **Orgle_SearchOrgle** only returns a subset of all matches on each invocation. **Orgle_SearchOrgle** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_SearchOrgle(
    @SearchString      nvarchar(250),
    @OrgleSiteID       uniqueidentifier,
    @RowCountStart     int,
    @RowCountEnd       int,
    @SearchScope       int,
    @bPublic           bit,
    @Collation         nvarchar(60),
    @TotalRowCount     int OUTPUT
);
```

@SearchString: Each audience whose audience name starts with the value MUST be included in the full search results. Leading whitespace MUST be ignored by the protocol server. If the value is NULL OR is the empty string, the protocol server MUST include all audiences in the full search results.

@OrgleSiteID: The value MUST be set to the SSP administration site identifier.

@RowCountStart: The 1-based index of the first audience in the full search results to be included in the SearchedAudiences result set. The value MUST be greater than or equal to 1.

@RowCountEnd: The 1-based index of the last audience in the full search results to be included in the SearchedAudiences result set. The value MUST be greater than or equal to the value of the input @RowCountStart parameter.

@SearchScope: The value MUST be set to 2.

@bPublic: Reserved. The value MUST NOT be set to NULL.

@Collation: The collation order to use for ordering the rows in the full search results and in the SearchedAudiences result set. The value MUST NOT be set to NULL.

@TotalRowCount: This returns the total number of audiences in the full search results.

Return Code Values: **Orgle_SearchOrgle** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_SearchOrgle** MUST return exactly one SearchedAudiences result set.

3.1.4.11.1 SearchedAudiences Result Set

The SearchedAudiences result set returns a list of audiences matching the search criteria specified in the input parameters. The SearchedAudiences result set MUST always be returned and MUST contain exactly one row for each audience returned. The number of audiences returned is determined by the full set of audiences which meet the search criteria and the constraint of the input @RowCountStart and @RowCountEnd parameters. The SearchedAudiences result set is defined using T-SQL syntax, as follows:

JOBStartTime	datetime,
OrgleID	uniqueidentifier,
OrgleName	nvarchar(200),
OrgleNameDescription	nvarchar(1500),
GroupType	smallint,
QueryCount	int,
LastRuleUpdate	datetime,
LastUpdate	datetime,
MembershipCount	int,
OrgleLock	bit,
LastErrorID	int;

JOBStartTime: Reserved.

OrgleID: The audience identifier assigned to the audience. The value MUST NOT be set to NULL.

OrgleName: The audience name assigned to the audience. The value MUST NOT be set to NULL.

OrgleNameDescription: The description of the audience.

GroupType: The logical grouping of the test conditions defining the audience rule for the audience. The value MUST be an **AudienceGroupType** data type as described in section [2.2.2](#).

QueryCount: The total number of **Rule**, **GroupStart**, **GroupEnd**, **LogicalAnd** and **LogicalOr** clauses in the ABNF representation of the audience rule of the audience, as specified in section [3.1.1.3](#).

LastRuleUpdate: The most recent time the audience rule of the audience was modified.

LastUpdate: The value of the audience compilation time.

MembershipCount: The number of audience members of the audience.

OrgleLock: A flag indicating the state of the audience compilation lock. The value MUST be 1 if the audience compilation lock is enabled, otherwise it MUST be 0.

LastErrorID: Reserved.

3.1.4.12 Audience_SearchAudienceAndDL

The **Audience_SearchAudienceAndDL** stored procedure is invoked to get a set of audiences and distribution lists that match a specific search string. The full set of all matches MAY be large, therefore **Audience_SearchAudienceAndDL** only returns a subset of all matches on each invocation. **Audience_SearchAudienceAndDL** is defined using T-SQL syntax, as follows:

```
PROCEDURE Audience_SearchAudienceAndDL(  
    @SearchString          nvarchar(250),  
    @SearchStringUnEncoded nvarchar(250),  
    @AudienceGuid         uniqueidentifier,  
    @AudienceType         int,  
    @PageIndex            int,  
    @PageSize             int  
) ;
```

@SearchString: The substring to match against using standard string logic. All audiences whose audience name or description contains the substring MUST be included in the full search results. All distribution lists whose distribution list name or description contains the substring MUST be included in the full search results. This value MUST be the same as the value of the **@SearchStringUnEncoded** parameter except that all percent ('%'), left bracket '[' and underscore '_' characters in the string MUST be surrounded by one left bracket '[' on the left and one right bracket ']' on the right. For example, if the **@SearchStringUnEncoded** value is 'Sample%Test' then the value of **@SearchString** MUST be 'Sample[%]Test'.

@SearchStringUnEncoded: The substring to match against using standard string logic. All audiences whose audience name or description contains the substring MUST be included in the full search results. All distribution lists whose distribution list name or description contains the substring MUST be included in the full search results.

@AudienceGuid: The audience identifier assigned to an audience. If the value is not NULL the stored procedure MUST include only the specified audience in the result set unless the audience identifier is not assigned to an existing audience, in which case the result set MUST be empty. If the value is not NULL, all other input parameters are ignored.

@AudienceType: The type of items to search for in the protocol server store. The value MUST be listed in the following table:

Value	Description
1	Include audiences in the set of searched items.
2	Include distribution lists in the set of searched items.
3	Include audiences AND distribution lists in the set of searched items.

@PageIndex: The 0-based page index of the items included in the result set. The value MUST be greater than or equal to 0. The value multiplied by the value of the input **@PageSize** parameter

indicates the index of the first item to include in the result set from the set of searched items which match the search criteria.

@PageSize: The maximum number of items to include in the result set. The value MUST be greater than 0.

Return Code Values: Audience_SearchAudienceAndDL returns an integer return code which is the count of searched items which match the input search criteria.

Result Sets: Audience_SearchAudienceAndDL MUST return exactly one SearchedAudiencesAndDLs result set.

3.1.4.12.1 SearchedAudiencesAndDLs Result Set

The SearchedAudiencesAndDLs result set returns the audiences and distribution lists that match the input search criteria, scoped by the value of the input *@PageIndex* parameter and the value of the input *@PageSize* parameter. The SearchedAudiencesAndDLs result set MUST always be returned and MUST contain one row for each returned audience and distribution list. The SearchedAudiencesAndDLs result set is defined using T-SQL syntax, as follows:

Type	int,
AudienceID	sql_variant,
AudienceName	nvarchar(250),
Description	nvarchar(1500),
TotalMembers	bigint,
MailNickname	nvarchar(250);

Type: The type of item being returned in the row. The value MUST be listed in the following table:

Value	Description
1	The row specifies an audience.
2	The row specifies a distribution list.

AudienceID: The identifier of the item being returned. If the item is an audience the value MUST be a **GUID** that is the audience identifier assigned to the audience. If the item is a distribution list the value MUST be a string which is the distribution list source name.

AudienceName: The name assigned to the item being returned.

Description: The description of the item being returned.

TotalMembers: The count of members belonging to the item being returned. If the item is an audience, the value MUST be set to the count of audience members of the audience. If the item is a distribution list, the value MUST be set to the count of distribution list members of the distribution list.

MailNickname: If the item being returned is a distribution list, the value MUST be set to the **e-mail address** of the distribution list. If the item is being returned is an audience, the value MUST be set to the empty string.

3.1.4.13 Orgle_GetUserOrgleList

The **Orgle_GetUserOrgleList** stored procedure is invoked to retrieve the set of audiences and distribution lists of which a specified user profile is a member. **Orgle_GetUserOrgleList** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetUserOrgleList(  
    @UserID                uniqueidentifier = NULL,  
    @NTName                nvarchar(400) = NULL,  
    @SID                   varbinary(512) = NULL,  
    @GetAudiences          bit = 1,  
    @GetMemberships        bit = 1,  
    @bDebug                bit = 0  
);
```

@UserID: The value MUST be set to NULL.

@NTName: The user profile account name of the user profile whose memberships are returned in the result sets.

@SID: The value MUST be set to NULL.

@GetAudiences: If the value is set to 1, the Audiences result set MUST be returned. If the value is set to 0, the Audiences result set MUST NOT be returned AND the value of the input *@GetMemberships* parameter MUST be set to 1. The value MUST NOT be set to NULL.

@GetMemberships: If the value is set to 1, the DistributionLists result set MUST be returned. If the value is set to 0, the DistributionLists result set MUST NOT be returned AND the value of the input *@GetAudiences* parameter MUST be set to 1. The value MUST NOT be set to NULL.

@bDebug: The value MUST be set to 0.

Return Code Values: **Orgle_GetUserOrgleList** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetUserOrgleList** MUST return one or two result sets based on the value of the input *@GetAudiences* parameter and the value of the input *@GetMemberships* parameter. If two result sets are being returned, the Audiences result set MUST be returned first and the DistributionLists result set MUST be returned second. The result sets are defined as follows:

3.1.4.13.1 Audiences Result Set

The Audiences result set returns all of the audiences in which the specified user profile is an audience member. The Audiences result set MUST always be returned if the value of the input *@GetAudiences* parameter is set to 1 and MUST contain one row for each audience in which the specified user profile is an audience member. The Audiences result set is defined using T-SQL syntax, as follows:

```
OrgleName                nvarchar(200),  
OrgleID                  uniqueidentifier;
```

OrgleName: The audience name of the audience being returned. The value MUST NOT be set to NULL.

OrgleID: The audience identifier assigned to the audience being returned. The value MUST NOT be set to NULL.

3.1.4.13.2 DistributionLists Result Set

The DistributionLists result set returns all of the distribution lists in which the specified user profile is an distribution list member. The DistributionLists result set MUST always be returned if the value of the input *@GetMemberships* parameter is set to 1 and MUST contain one row for each distribution list in which the specified user profile is an distribution list member. The DistributionLists result set is defined using T-SQL syntax, as follows:

```
DisplayName          nvarchar(250),
SourceReference      nvarchar(2048);
```

DisplayName: The name of the distribution list being returned.

SourceReference: The distribution list source name of the distribution list being returned.

3.1.4.14 Orgle_GetOverallStats

The **Orgle_GetOverallStats** stored procedure is invoked to retrieve general information about the audiences in the protocol server store. **Orgle_GetOverallStats** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOverallStats();
```

Return Code Values: **Orgle_GetOverallStats** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOverallStats** MUST return exactly one AudienceStatistics result set.

3.1.4.14.1 AudienceStatistics Result Set

The AudienceStatistics result set returns general information regarding the current status of the audiences in the protocol server store. The AudienceStatistics result set MUST always be returned and MUST always contain exactly one row. The AudienceStatistics result set is defined using T-SQL syntax, as follows:

```
LastCompileStartTime      datetime,
LastCompileFinishTime     datetime,
LastContentUpdateTime     datetime,
CompileInProgress         bit,
TotalAudience             int,
AudienceRuleChangeSinceLastCompile int,
AudienceCompiledSofar     int,
LastCompileError          nvarchar(3000);
```

LastCompileStartTime: The UTC beginning date and time of the most recent audience compilation job which updated the last start time of the audience compilation job. If no such audience compilation job has started successfully then the value MUST be set to NULL.

LastCompileFinishTime: The UTC end date and time of the most recent audience compilation job which updated the last end time of the audience compilation job. If no such audience compilation job has finished successfully then the value MUST be set to NULL.

LastContentUpdateTime: The UTC beginning date and time of the most recent user profile import. If no user profile import has occurred then the value MUST be set to NULL.

CompileInProgress: The status of the audience compilation job. The value MUST be listed in the following table:

Value	Description
0	The audience compilation job is not in progress.
1	The audience compilation job is in progress.

TotalAudience: The number of audiences in the store.

AudienceRuleChangeSinceLastCompile: The number of audience rules which have been modified after the most recent time the audience compilation was performed using that audience rule. The value MUST NOT be set to NULL.

AudienceCompiledSofar: The number of audiences which have been compiled after the beginning of the most recent audience compilation job which updated the last start time of the audience compilation job and whose audience rule has not been modified after that compilation. The value MUST NOT be set to NULL.

LastCompileError: The most recent error message recorded via the Orgle_GetErrorLog stored procedure. If no such error message was recorded or the error log has been emptied, the value MUST be set to NULL.

3.1.4.15 Orgle_GetOrgleNamesFromIDs

The **Orgle_GetOrgleNamesFromIDs** stored procedure is invoked to get summary information about each audience and removed audience in a set of specified audiences.

Orgle_GetOrgleNamesFromIDs is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleNamesFromIDs(  
    @AudienceIDs          varchar(7000)  
)  
;
```

@AudienceIDs: The list of audience identifiers assigned to each of the audiences and removed audiences to be included in the set of returned results. Each identifier MUST be the string representation of a GUID that is the audience identifier assigned to an audience. The value MUST be a comma delimited list of single quoted identifiers, for example 'GUID1','GUID2','GUID3'

Each audience identifier in the input parameter MUST be surrounded by an apostrophe on each end. If there is more than one audience identifier in the input parameter, each of the individual quoted strings MUST be concatenated together and separated by a single comma.

The stored procedure attempts to match each input GUID value with the audience identifier assigned to each existing audience and removed audience in the protocol server store. Each matching audience and removed audience MUST be included in the returned result sets. All non-matching values MUST be ignored.

Return Code Values: **Orgle_GetOrgleNamesFromIDs** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOrgleNamesFromIDs** MUST return exactly two result sets, one Audiences result set followed by one RemovedAudiences result set.

3.1.4.15.1 Audiences Result Set

The Audiences result set returns the set of summary information for each audience whose audience identifier matches an identifier in the input parameter. The result set MUST always be returned and MUST contain one row for each audience in the store whose audience identifier matches one of the identifiers in the input parameter. If there are no audiences in the store whose audience identifier matches any identifier in the input parameter, the result set MUST be empty. The Audiences result set is defined using T-SQL syntax, as follows:

OrgleID	uniqueidentifier,
OrgleName	nvarchar(200),
OrgleNameDescription	nvarchar(1500),
OwnerAccountName	nvarchar(400),
OrgleSiteID	uniqueidentifier,
bPublic	bit,
TableName	nvarchar(200);

OrgleID: The audience identifier assigned to the audience. The value MUST NOT be set to NULL.

OrgleName: The audience name of the audience. The value MUST NOT be set to NULL.

OrgleNameDescription: The description of the audience.

OwnerAccountName: The user profile account name of the audience owner.

OrgleSiteID: The value MUST be set to the SSP administration site identifier.

bPublic: Reserved. The value MUST NOT be set to NULL.

TableName: The value MUST be set to NULL.

3.1.4.15.2 RemovedAudiences Result Set

The RemovedAudiences result set returns the set of summary information for each removed audience whose audience identifier matches an identifier in the input parameter. The result set MUST always be returned and MUST contain one row for each removed audience in the store whose audience identifier matches one of the identifiers in the input parameter. If there are no removed audiences in the store whose audience identifier matches any identifier in the input parameter, the result set MUST be empty. The result set is defined using T-SQL syntax, as follows:

OrgleID	uniqueidentifier,
OrgleName	nvarchar(200),
OrgleNameDescription	nvarchar(1500),
OwnerAccountName	nvarchar(400),

OrgleSiteID	uniqueidentifier,
bPublic	bit,
DeleteTime	datetime,
TableName	nvarchar(200);

OrgleID: The audience identifier assigned to the removed audience. The value MUST NOT be set to NULL.

OrgleName: The audience name of the removed audience. The value MUST NOT be set to NULL.

OrgleNameDescription: The description of the removed audience.

OwnerAccountName: The user profile account name of the audience owner of the removed audience.

OrgleSiteID: The value MUST be set to the SSP administration site identifier.

bPublic: Reserved. The value MUST NOT be set to NULL.

DeleteTime: The UTC time the audience corresponding to the removed audience was removed from the protocol server store, which is also the time the removed audience was created in the protocol server store.

TableName: The value MUST be set to NULL.

3.1.4.16 Orgle_GetOrgleOperatorList

The **Orgle_GetOrgleOperatorList** stored procedure is invoked to retrieve the list of operators supported in an audience rule, as shown in the ABNF [RFC4234] specification in section [3.1.1.3.1](#). **Orgle_GetOrgleOperatorList** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleOperatorList();
```

Return Code Values: **Orgle_GetOrgleOperatorList** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOrgleOperatorList** MUST return exactly one OperatorList result set.

3.1.4.16.1 OperatorList Result Set

The OperatorList result set returns the list of operators supported in an audience rule. The OperatorList result set MUST always be returned and MUST contain one row for each operator in the list. The result set MUST have a total of 14 rows. The OperatorList result set is defined using T-SQL syntax, as follows:

OrgleOp	nvarchar(50),
OrgleOpName	nvarchar(200),
OrgleOpDisplayName	nvarchar(200),
bGroupOp	bit,
bNot	bit;

OrgleOp: The logical operator for a specific clause in an audience rule.

OrgleOpName: The unique identifying name of the operator.

OrgleOpDisplayName: The descriptive name of the operator, localized in the language of the protocol server store. The value MUST NOT be set to NULL.

bGroupOp: If the value is 0, the operator is associated with a **Rule** clause. If the value is 1, the operator is associated with a non-**Rule** clause.

bNot: If the value is 1, the operator is a negation operator associated with a **Rule** clause. If the value is 0, the operator is not a negation operator.

The contents of the OperatorList result set MUST be exactly as follows, except for the values in the **OrgleOpDisplayName** column which MUST be localized in the chosen language of the protocol server store:

OrgleOp	OrgleOpName	OrgleOpDisplayName	bGroupOn	bNot
=	=	=	0	0
>	>	>	0	0
>=	>=	>=	0	0
<	<	<	0	0
<=	<=	<=	0	0
Contains	Contains	Contains	0	0
ReportsUnder	Reports Under	Reports Under	0	0
=	<>	<>	0	1
Contains	Not contains	Not Contains	0	1
AND	AND	AND	1	0
OR	OR	OR	1	0
(((1	0
)))	1	0
Memberof	Member of	Member Of	0	0

3.1.4.17 Orgle_GetOrgleSiteList

The **Orgle_GetOrgleSiteList** stored procedure is invoked to retrieve the set of SSP administration sites which have ever been associated with the audiences in the protocol server store. In normal usage, there is only one SSP administration site associated with all the audiences in the store. However, if the SSP administration site has ever moved then all the former locations are also tracked in the store. **Orgle_GetOrgleSiteList** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleSiteList(  
    @SiteGUID                uniqueidentifier,  

```

```

        @bCentralProfile          bit,
        @SiteURL                  nvarchar(3000) = null,
        @bDebug                   bit = 0
    );

```

@SiteGUID: The value MUST be set to the SSP administration site identifier.

@bCentralProfile: Reserved. The value MUST NOT be set to NULL.

@SiteURL: The value MUST be set to the location of the SSP administration site.

@bDebug: The value MUST be set to 0.

Return Code Values: **Orgle_GetOrgleSiteList** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOrgleSiteList** MUST return exactly one AudienceSiteList result set.

3.1.4.17.1 AudienceSiteList Result Set

The AudienceSiteList result set returns the set of SSP administration sites that have ever been associated with the audiences in the store. The result set MUST always be returned and MUST contain at least one row for each SSP administration site which has been associated with an audience in the store. The result set is defined using T-SQL syntax, as follows:

```

Errorint,
OrgleSiteID          uniqueidentifier,
bPublic              bit,
OrgleSiteURL          nvarchar(3000),
bCentral              bit;

```

Error: Any value which is not zero indicates an error was encountered retrieving the set of SSP administration sites associated with the audiences. The value MUST be the same in each row.

OrgleSiteID: The value MUST be set to the SSP administration site identifier.

bPublic: Reserved. The value MUST NOT be set to NULL.

OrgleSiteURL: The value MUST be set to the location of the SSP administration site OR the value MUST be set to NULL.

bCentral: Reserved. The value MUST NOT be set to NULL.

3.1.4.18 Orgle_GetEveryoneString

The **Orgle_GetEveryoneString** stored procedure is invoked to retrieve the localized string value for the English string 'User' in the base language of the protocol server store.

Orgle_GetEveryoneString is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_GetEveryoneString();

```

Return Code Values: **Orgle_GetEveryoneString** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetEveryoneString** MUST return exactly one LocalizedEveryoneString result set.

3.1.4.18.1 LocalizedEveryoneString Result Set

The LocalizedEveryoneString result set returns the localized string value for the string 'User' in the base language of the protocol server store. The result set MUST always be returned and MUST contain exactly one row. The result set is defined using T-SQL syntax, as follows:

```
ErrorId          int,
Msg              nvarchar(1000),
LocalizedMsg     nvarchar(2000);
```

ErrorId: The value MUST be -1.

Msg: The value MUST be 'User'.

LocalizedMsg: The localized string, in the base language of the protocol server, corresponding to the English string 'User'.

3.1.4.19 Orgle_GetOrgleDetail

The **Orgle_GetOrgleDetail** stored procedure is invoked to retrieve the detailed information about an existing audience from the protocol server store. **Orgle_GetOrgleDetail** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleDetail (
    @OrgleSiteID      uniqueidentifier,
    @bPublic          bit,
    @OrgleID          uniqueidentifier
);
```

@OrgleSiteID: The value MUST be set to the SSP administration site identifier.

@bPublic: Reserved. The value MUST NOT be set to NULL.

@OrgleID: The audience identifier assigned to the requested audience.

Return Code Values: **Orgle_GetOrgleDetail** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOrgleDetail** MUST return exactly one result set.

3.1.4.19.1 AudienceDetails Result Set

The AudienceDetails result set returns the detailed information of the requested audience from the protocol server store. The AudienceDetails result set MUST always be returned. If the requested audience is found in the protocol server store, the result set MUST contain exactly one row; otherwise the result set MUST be empty. The result set is defined using T-SQL syntax, as follows:

OrgleID	uniqueidentifier,
OrgleName	nvarchar(200),
OrgleNameDescription	nvarchar(1500),
OwnerAccountName	nvarchar(400),
GroupType	smallint,
LastRuleUpdate	datetime,
LastUpdate	datetime,
MembershipCount	int,
LocalizedMsg	nvarchar(2402),
OrgleLock	bit,
LastPropertyUpdate	datetime,
CreateTime	datetime;

OrgleID: The audience identifier assigned to the audience. The value MUST NOT be set to NULL.

OrgleName: The audience name of the audience. The value MUST NOT be set to NULL.

OrgleNameDescription: The description of the audience.

OwnerAccountName: The user profile account name of the audience owner.

GroupType: The logical grouping of the test conditions defining the audience rule for the audience. The value MUST be an **AudienceGroupType** data type as described in section [2.2.2](#).

LastRuleUpdate: The most recent time the audience rule of the audience was modified.

LastUpdate: The value of the audience compilation time.

MembershipCount: The number of audience members of the audience.

LocalizedMsg: The most recent localized error message recorded in the audience compilation job error log. The value MUST be NULL if there were no audience compilation errors recorded.

OrgleLock: A flag indicating the state of the audience compilation lock. The value MUST be 1 if the audience compilation lock is enabled, otherwise it MUST be 0.

LastPropertyUpdate: The most recent time a property of the audience was modified or the audience rule of the audience was modified.

CreateTime: The time the audience was created.

3.1.4.20 Orgle_GetOrgleList

The **Orgle_GetOrgleList** stored procedure is invoked to retrieve the detailed information about all audiences in the protocol server store using a specified collation order. **Orgle_GetOrgleList** is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_GetOrgleList (
    @OrgleSiteID          uniqueidentifier,
    @bPublic              bit,
    @Collation            nvarchar(60),
    @OrgleSiteURL         nvarchar(1000) = NULL
);

```

@OrgleSiteID: The value MUST be set to the SSP administration site identifier.

@bPublic: Reserved. The value MUST NOT be set to NULL.

@Collation: The collation order to use for ordering the rows in the result set. The value MUST NOT be set to NULL.

@OrgleSiteURL: The value MUST be set to NULL.

Return Code Values: **Orgle_GetOrgleList** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOrgleList** MUST return exactly one AudienceDetails result set.

3.1.4.20.1 AudienceDetails Result Set

The AudienceDetails result set returns the detailed information about all audiences in the protocol server store and ordered by the values in the **OrgleName** column using the specified collation order. The result set MUST always be returned and MUST contain one row for each audience in the store. The result set is defined using T-SQL syntax, as follows:

OrgleID	uniqueidentifier,
OrgleName	nvarchar(200),
OrgleNameDescription	nvarchar(1500),
OwnerAccountName	nvarchar(400),
GroupType	smallint,
LastRuleUpdate	datetime,
LastUpdate	datetime,
MembershipCount	int,
LocalizedMsg	nvarchar(2402),
OrgleLock	bit,
LastPropertyUpdate	datetime,
CreateTime	datetime;

OrgleID: The audience identifier assigned to the audience. The value MUST NOT be set to NULL.

OrgleName: The audience name of the audience. The value MUST NOT be set to NULL.

OrgleNameDescription: The description of the audience.

OwnerAccountName: The user profile account name of the audience owner.

GroupType: The logical grouping of the test conditions defining the audience rule for the audience. The value MUST be an **AudienceGroupType** data type as described in section [2.2.2](#).

LastRuleUpdate: The most recent time the audience rule of the audience was modified.

LastUpdate: The value of the audience compilation time.

MembershipCount: The number of audience members of the audience.

LocalizedMsg: The most recent localized error message recorded in the audience compilation job error log. The value MUST be NULL if there were no audience compilation errors recorded.

OrgleLock: A flag indicating the state of the audience compilation lock. The value MUST be 1 if the audience compilation lock is enabled, otherwise it MUST be 0.

LastPropertyUpdate: The most recent time a property of the audience was modified or the audience rule of the audience was modified.

CreateTime: The time the audience was created.

3.1.4.21 Orgle_GetOrgleListAll

The **Orgle_GetOrgleListAll** stored procedure is invoked to retrieve all audiences from the protocol server store. **Orgle_GetOrgleListAll** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleListAll (  
    @Collation          nvarchar(60) = NULL  
);
```

@Collation: The value MUST be set to NULL.

Return Code Values: **Orgle_GetOrgleListAll** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_GetOrgleListAll** MUST return exactly one Audiences result set.

3.1.4.21.1 Audiences Result Set

The Audiences result set returns the identifying information for all audiences in the protocol server store. The result set MUST always be returned and MUST contain one row for each audience in the store. The result set is defined using T-SQL syntax, as follows:

```
OrgleID          uniqueidentifier,  
OrgleName        nvarchar(200);
```

OrgleID: The audience identifier assigned to the audience. The value MUST NOT be set to NULL.

OrgleName: The audience name of the audience. The value MUST NOT be set to NULL.

3.1.4.22 Orgle_Job_Start

The **Orgle_Job_Start** stored procedure is invoked to record the beginning of the audience compilation job. The **Orgle_Job_Start** stored procedure MUST clear all stored error information (stored using the **Orgle_Job_ErrorLog** stored procedure as defined in section [3.1.4.26](#)) associated with the audience compilation job. **Orgle_Job_Start** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_Job_Start(  
    @bSingleAudience    bit  
);
```

@bSingleAudience: This specifies whether the protocol server MUST update the last start time of the audience compilation job. The value MUST be listed in the following table:

Value	Description
0	The server MUST update the last start time of the audience compilation job.
1	The server MUST NOT update the last start time of the audience compilation job.

Return Code Values: Orgle_Job_Start returns an integer return code which MUST be set to 0.

Result Sets: Orgle_Job_Start MUST return exactly one JobDetails result set.

3.1.4.22.1 JobDetails Result Set

The JobDetails result set returns details of the latest audience compilation job. The JobDetails result set MUST always be returned and MUST contain exactly one row. The JobDetails result set is defined using T-SQL syntax, as follows:

```
ADImportTime          datetime,
AudienceInProgress    bit,
AudienceLastStartTime datetime,
AudienceLastEndTime   datetime,
JobRun                 bit;
```

ADImportTime: The UTC beginning date and time of the most recent user profile import. If no user profile import has occurred then the value MUST be set to NULL.

AudienceInProgress: The prior status of the audience compilation job. The value MUST be listed in the following table:

Value	Description
0	The audience compilation job was not already running.
1	The audience compilation job was already running.

AudienceLastStartTime: The UTC beginning date and time of the most recent audience compilation job which updated the last start time of the audience compilation job. If no such audience compilation job has started then the value MUST be set to NULL.

AudienceLastEndTime: The UTC end date and time of the most recent audience compilation job which updated the last end time of the audience compilation job. If no such audience compilation job has finished then the value MUST be set to NULL.

JobRun: This indicates the status of the request to track the beginning of the new audience compilation job. The status returned MUST be listed in the following table:

Value	Description
0	The audience compilation job has not been recorded as successfully started. <ul style="list-style-type: none">▪ If the AudienceInProgress value is 1, the value of JobRun MUST be set to 0.▪ If the protocol server store cannot properly record the state of the audience compilation job, the value of JobRun MUST be set to 0.
1	The audience compilation job has been tracked as successfully started.

3.1.4.23 Orgle_Job_Stop

The **Orgle_Job_Stop** stored procedure is invoked to record the cancellation of the audience compilation job to ensure the protocol server no longer tracks the audience compilation job as in progress. **Orgle_Job_Stop** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_Job_Stop();
```

Orgle_Job_Stop returns the same result whether or not the audience compilation job is in progress at the time the stored procedure is invoked.

Return Code Values: **Orgle_Job_Stop** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_Job_Stop** MUST NOT return a result set.

3.1.4.24 Orgle_Job_End

The **Orgle_Job_End** stored procedure is invoked to record the end of the audience compilation job when the audience compilations have finished successfully. **Orgle_Job_End** SHOULD disable the audience compilation lock for all audiences in the protocol server store upon completion of the stored procedure. **Orgle_Job_End** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_Job_End(  
    @bSingleAudience    bit = 0  
);
```

@bSingleAudience: This specifies whether the protocol server MUST update the last end time of the audience compilation job. The value MUST be listed in the following table:

Value	Description
0	The server MUST update the last end time of the audience compilation job.
1	The server MUST NOT update the last end time of the audience compilation job.

Return Code Values: **Orgle_Job_End** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_Job_End** MUST NOT return a result set.

3.1.4.25 Orgle_Job_Continue

The **Orgle_Job_Continue** stored procedure is invoked to determine if the audience compilation job is currently running. **Orgle_Job_Continue** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_Job_Continue(  
    @bContinue          bit OUTPUT  
);
```

@bContinue: The status of the audience compilation job. The value MUST be listed in the following table:

Value	Description
0	The job is not currently running.
1	The job is currently running.

Return Code Values: **Orgle_Job_Continue** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_Job_Continue** MUST NOT return a result set.

3.1.4.26 Orgle_Job_ErrorLog

The **Orgle_Job_ErrorLog** stored procedure is invoked to log an error during the audience compilation job. When this stored procedure is called, the protocol server MUST store the information in the input parameters in the audience compilation job error log. **Orgle_Job_ErrorLog** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_Job_ErrorLog(  
    @AudienceName      nvarchar(200),  
    @ErrorID            int,  
    @QueryID            bigint,  
    @ErrorString         nvarchar(3800)  
);
```

@AudienceName: The name of the audience associated with the error. The value can be NULL indicating the error is not associated with a specific audience.

@ErrorID: A number that represents the error being logged. The value MUST be listed in the following table:

Value	Description
1	Error encountered during call to Orgle_Job_Start stored procedure.
2	User profile import is currently in progress.
3	Orgle_Job_Start stored procedure reported that the audience compilation job is currently in progress.
4	The audience compilation job has successfully finished, but there was an error during call to Orgle_Job_End stored procedure to finalize the status.
5	There was an attempt to cancel the audience compilation job by calling the Orgle_Job_Stop stored procedure, but the operation failed.
6	The audience compilation lock was not successfully enabled for a specific audience via the Orgle_job_Lock stored procedure.
7	An unexpected error occurred while performing audience compilation of a specific audience rule. The failure occurred while executing the Orgle_RunOrgleRules stored procedure. If this value is set, the value of the of the @QueryID parameter MUST NOT be set to 0.

Value	Description
8	An unexpected error occurred while disabling the audience compilation lock for a specific audience via the Orgle_job_UnLock stored procedure.

@QueryID: Additional error state about why the audience compilation failed. If the value of the input *@ErrorID* parameter is not 7, the value MUST be set to 0. The value MUST be listed in the following table:

Value	Description
-1	A general error was encountered while performing audience compilation on the audience rule for the specified audience.
0	The error is not associated with audience compilation.
1	An error was encountered while specifically evaluating an audience rule using the "=" operator.
2	An error was encountered while specifically evaluating an audience rule using the ">" operator.
3	An error was encountered while specifically evaluating an audience rule using the ">=" operator.
4	An error was encountered while specifically evaluating an audience rule using the "<" operator.
5	An error was encountered while specifically evaluating an audience rule using the "<=" operator.
6	An error was encountered while specifically evaluating an audience rule using the "Contains" operator.
7	An error was encountered while specifically evaluating an audience rule using the "Reports Under" operator.
8	An error was encountered while specifically evaluating an audience rule using the NOT "=" operator.
9	An error was encountered while specifically evaluating an audience rule using the NOT "Contains" operator.
10	An error was encountered while specifically evaluating an audience rule using the LogicalAnd expression.
11	An error was encountered while specifically evaluating an audience rule using the LogicalOr expression.
12	An error was encountered while specifically evaluating an audience rule using the GroupStart precedence operator.
13	An error was encountered while specifically evaluating an audience rule using the GroupEnd precedence operator.
14	An error was encountered while specifically evaluating an audience rule using the "Member of" operator.

@ErrorString: The descriptive explanation of the error being logged.

Return Code Values: **Orgle_Job_ErrorLog** returns an integer return code which MUST be set to 0.

Result Sets: **Orgle_Job_ErrorLog** MUST NOT return a result set.

3.1.4.27 Orgle_job_Lock

The **Orgle_job_Lock** stored procedure is invoked to enable the audience compilation lock on a specific audience. **Orgle_job_Lock** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_job_Lock(  
    @OrgleName          nvarchar(200),  
    @OrgleLock          bit OUTPUT  
);
```

@OrgleName: The audience name of the audience whose audience compilation lock is to be enabled.

@OrgleLock: The result of the request to enable the audience compilation lock on the specified audience. The value **MUST** be listed in the following table:

Value	Description
0	The audience compilation lock on the specified audience was successfully enabled.
1	The audience compilation lock on the specified audience was not successfully enabled.

If the value of the input *@OrgleName* parameter does not match the audience name assigned to any existing audience in the protocol server store, then the output *@OrgleLock* parameter **MUST** be set to 1. If the audience compilation lock on the specified audience was already enabled prior to the current invocation of the stored procedure, then the output *@OrgleLock* parameter **MUST** be set to 1.

Return Code Values: **Orgle_job_Lock** returns an integer return code which **MUST** be set to 0.

Result Sets: **Orgle_job_Lock** **MUST NOT** return a result set.

3.1.4.28 Orgle_job_UnLock

The **Orgle_job_UnLock** stored procedure is invoked to disable the audience compilation lock on a specific audience. **Orgle_job_UnLock** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_job_UnLock(  
    @OrgleName          nvarchar(200)  
);
```

@OrgleName: The audience name of the audience whose audience compilation lock is to be disabled.

If the value of the input *@OrgleName* parameter does not match the audience name assigned to any existing audience in the protocol server store, then no audience compilation lock is modified.

Return Code Values: **Orgle_job_UnLock** returns an integer return code which **MUST** be set to 0.

Result Sets: **Orgle_job_UnLock** **MUST NOT** return a result set.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

4 Protocol Examples

4.1 Create an Audience

A protocol client could contain a self-service user interface to enable users to create new audiences if they have the permissions to do so. In this example, the client creates a new "HR managers" audience using the **Orgle_AddRemoveOrgleName** and **Orgle_UpdateOrgleRules** stored procedures. The client begins by creating the audience by invoking **Orgle_AddRemoveOrgleName** as follows:

```
exec dbo.Orgle_AddRemoveOrgleName
    @OrgleName = 'HR managers',
    @OrgleDescription = 'All managers in the HR department',
    @OwnerAccountName = 'contoso\corets',
    @SiteGUID = 'AAAABBBB-CCCC-DDDD-EEEE-FFFF00001111',
    @bCentral = 0,
    @bPublic = 0,
    @bRemove = 0,
    @GroupType = 2,
    @bDebug = 0;
```

The protocol client can then create the rule for this audience. The client defines the rule as users whose **Department** property contains "Human Resources" and whose **Title** property contains "Manager". The client updates the audience rule by invoking **Orgle_UpdateOrgleRules** as follows:

```
exec dbo.Orgle_UpdateOrgleRules
    @OrgleRuleList = '<?xml version="1.0" encoding="utf-16"?><MSORGLE><ORGLE OrgleName="HR managers"><QUERY LeftContent="Department" Property="1" Operator="Contains" RightContent="Human Resources" bNot="0" /><QUERY GroupOperator="AND" /><QUERY LeftContent="Title" Property="1" Operator="Contains" RightContent="Manager" bNot="0" /></ORGLE></MSORGLE>',
    @Debug = 0;
```

4.2 Find and Edit an Audience

A protocol client could contain a management interface for managing audiences. For convenience, the protocol client can use multiple stored procedures to retrieve audiences from the protocol server. For example, the protocol client could use **Orgle_GetOrgleList** to show all audiences to the user in a table or it could allow the user to search for a specific audience using **Orgle_SearchOrgle**. In this example, the user searches for "HR" to see all audiences related to Human Resources by invoking **Orgle_SearchOrgle** as follows:

```
exec dbo.Orgle_SearchOrgle
    @SearchString = 'HR',
    @OrgleSiteID = 'AAAABBBB-CCCC-DDDD-EEEE-FFFF00001111',
    @RowCountStart = 1,
    @RowCountEnd = 100,
    @SearchScope = 2,
    @bPublic = 0,
    @Collation = 'Latin1_General_CI_AI',
    @TotalRowCount OUTPUT;
```

The protocol client allows the user to select the "HR managers" audience and can show detail information about the audience retrieved using the **Orgle_GetOrgleDetail** stored procedure as follows:

```
exec dbo.Orgle_GetOrgleDetail
    @OrgleSiteID = 'AAAABBBB-CCCC-DDDD-EEEE-FFFF00001111',
    @bPublic = 0,
    @OrgleID = '01234567-0123-4567-89AB-0123456789AB';
```

The protocol client allows the user to update the description of the "HR managers" audience to change the description to "Managers in Human Resources" and update "contoso\park" as the audience owner. The client updates the audience by invoking **Orgle_UpdateOrgleName** as follows:

```
exec dbo.Orgle_UpdateOrgleName
    @OrgleID = '01234567-0123-4567-89AB-0123456789AB',
    @OrgleName = 'HR managers',
    @OrgleDescription = 'Managers in Human Resources',
    @OwnerAccountName = 'contoso\park',
    @OrgleSiteID = 'AAAABBBB-CCCC-DDDD-EEEE-FFFF00001111',
    @GroupType = NULL,
    @bDebug = 0;
```

4.3 Retrieve Audiences for a User

A protocol client could implement a user interface to check the membership in all audiences for a specific user. In this example, the protocol client retrieves all audiences that include "contoso\corets" as a member. The client invokes **Orgle_GetUserOrgleList** as follows:

```
exec dbo.Orgle_GetUserOrgleList
    @UserID = NULL,
    @NTName = 'contoso\corets',
    @SID = NULL,
    @GetAudiences = 1,
    @GetMemberships = 0,
    @bDebug = 0;
```

4.4 Secure and Target Content to an Audience

A protocol client can target content such as a document on a portal to one or more audiences. Members of the targeted audiences would be able to see a link of the document on a dashboard page of the portal or would be able to access the document directly. In this example, the protocol client has the protocol server check whether the "contoso\park" user is an audience member in order to grant access to the document. For the example, an "HR managers" audience exists and the audience membership is current. The client invokes **Orgle_MemberOfAudience** as follows:

```
exec dbo.Orgle_MemberOfAudience
    @NTName = 'contoso\park',
    @OrgleID = '01234567-0123-4567-89AB-0123456789AB';
```

4.5 Compile an Audience

A protocol client can request the protocol server compile an audience at any time to ensure that the membership is current. The compilation task duration typically increases with complexity of the rules and might be too long to query the audience in real time. The protocol client needs to determine when to request the compilation job based on performance requirements. For example, the protocol client could set a recurring job to compile all audiences every 24 hours, or the client could compile an audience before using it in a targeting scenario similar to the following example if performance is less of an issue. In that case, the client could use the following sequence:

- Record the start of the compilation job: **Orgle_Job_Start**
- Prevent other clients from modifying the audience: **Orgle_job_Lock**
- Compile the audience: **Orgle_RunOrgleRules**
- Stop preventing other clients from modifying the audience: **Orgle_job_UnLock**
- Record the end of the compilation job: **Orgle_Job_End**

The sequence corresponds to the protocol client invoking the following methods:

```
exec dbo.Orgle_Job_Start
    @bSingleAudience = 0;
exec dbo.Orgle_job_Lock
    @OrgleName = 'HR managers',
    @OrgleLock OUTPUT;
exec dbo.Orgle_RunOrgleRules
    @OrgleName = 'HR managers',
    @ForceRun = 0,
    @LastAudienceStartTime = NULL,
    @Debug = 0;
exec dbo.Orgle_job_UnLock
    @OrgleName = 'HR managers';
exec dbo.Orgle_Job_End
    @bSingleAudience = 0;
```

5 Security

5.1 Security Considerations for Implementers

Interactions with SQL are susceptible to tampering and other forms of security risks. Implementers are advised to check input parameters for stored procedures prior to invoking the stored procedure.

There are no additional security considerations for implementers. Security assumptions of this protocol are documented in section [1.5](#) (Prerequisites/Preconditions).

5.2 Index of Security Parameters

None.

6 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- Microsoft® Office SharePoint® Server 2007
- Microsoft® SQL Server® 2005
- Microsoft® SQL Server® 2008
- Microsoft® SQL Server® 2008 R2

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

7 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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