

# [MS-UPSAUD2]: User Profile Service Audiences Version 2 Protocol Specification

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## Revision Summary

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08/28/2009	0.2	Editorial	Revised and edited the technical content
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# 1 Introduction

This document specifies the User Profile Service Audiences protocol. This 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 server group, users who are in a specific organizational reporting structure, or users whose public properties have certain values.

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

## 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**  
**membership**  
**result set**  
**return code**  
**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

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the technical documents, which are updated frequently. References to other documents include a publishing year when one is available.

### 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](mailto: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.

[Iseminger] 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://www.microsoft.com/mspress/books/5001.aspx>

[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-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>

[RFC4234] Crocker, D., Ed., and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", RFC 4234, October 2005, <http://www.ietf.org/rfc/rfc4234.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](#)".

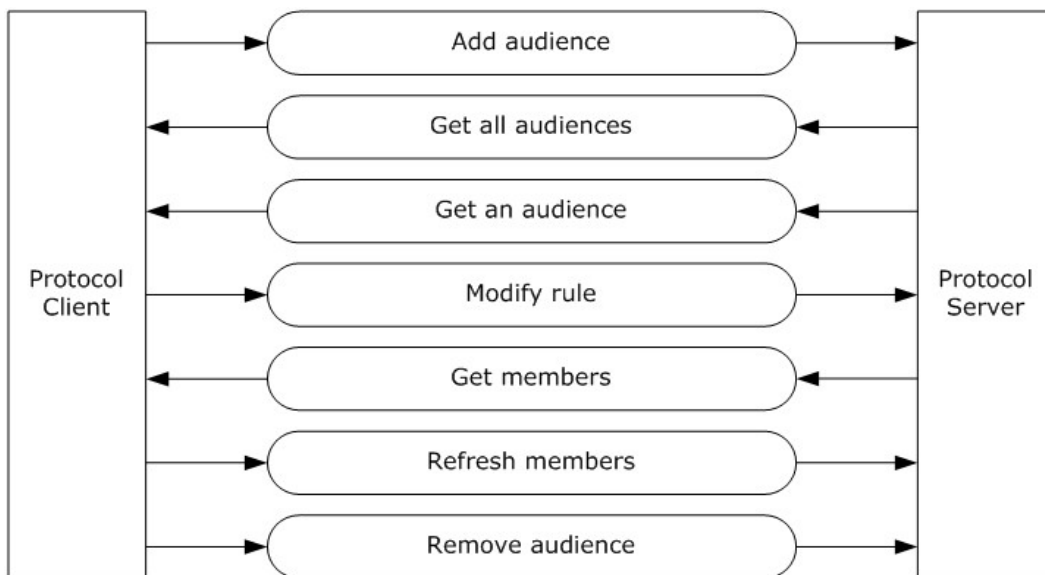
### 1.3 Protocol Overview (Synopsis)

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

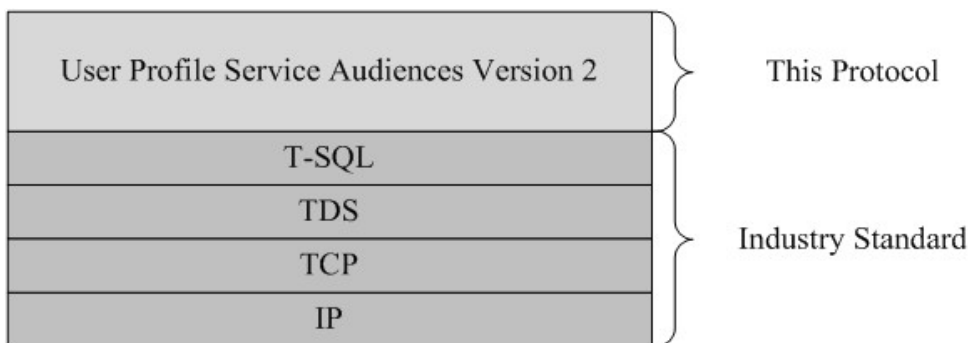
server. The **Remove Audience** operation removes an audience from the store on the protocol server.



**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

This 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** (Structured Query Language) 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

This section contains common definitions used by this protocol.

#### 2.2.1 Simple Data Types and Enumerations

None.

##### 2.2.1.1 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 left-to-right logical precedence order and respecting any logical grouping operators..

#### 2.2.2 OperatorListType

OperatorListType describes the contents of the OperatorList result set. It 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

OrgleOp	OrgleOpName	OrgleOpDisplayName	bGroupOn	bNot
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

### 2.2.3 Bit Fields and Flag Structures

None.

### 2.2.4 Binary Structures

None.

### 2.2.5 Result Sets

#### 2.2.5.1 SearchedAudiencesAndDLs

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:

```
AudienceId sql_variant,
AudienceName nvarchar(250),
Type int,
Description nvarchar(1500),
TotalMembers bigint,
MailNickName nvarchar(250),
```

**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.

**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.

**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.

### 2.2.5.2 AddRemoveAudience

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

```
ERROR int,  
OrgleID uniqueidentifier,
```

**ERROR:** If the input parameter @bRemove is set to 0, the value 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.

If the input parameter @bRemove is set to 1, the value MUST be listed in the following table:

Value	Description
0	Successful execution.
1	Error indication 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 added or removed audience.

### 2.2.5.3 LocalizedEveryoneString

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),
PartitionID uniqueidentifier,
```

**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'.

**PartitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

#### 2.2.5.4 AudienceDetails

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 [2.2.1.1](#).

**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.

### 2.2.5.5 AllAudiences

The AllAudiences 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.

### 2.2.5.6 OperatorList

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),  
bGroupOp bit,  
bNot bit,
```

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

**OrgleOpName:** The unique identifying name of the operator.

**bGroupOp:** If the value is 0, the operator is associated with a **Rule** clause, as described in section [3.1.1.3](#). If the value is 1, the operator is not associated with a **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 are described by the [OperatorListType](#).

### 2.2.5.7 AudienceRule

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 **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** (described in section [3.1.1.3](#)), **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),
```

```
OrgleOpName nvarchar(200),
RightContent nvarchar(2048),
OrderID int,
bNot bit,
```

**PropertyName:** For **PropertyRules**, described in section [3.1.1.3.1](#), 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.

**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.

## 2.2.5.8 AudienceStatistics

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 (Coordinated Universal Time) 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 0 if the audience compilation job is not in progress. The value MUST be 1 if 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\_Job\_ErrorLog stored procedure (defined in section [3.1.5.15](#)). If no such error message was recorded or the error log has been emptied, the value MUST be set to NULL.

### 2.2.5.9 Audiences

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.

### 2.2.5.10 DistributionLists

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.



### 2.2.5.11 LatestAudienceDetails

The LatestAudienceDetails result set returns details of the latest audience compilation job. The LatestAudienceDetails result set MUST always be returned and MUST contain exactly one row. The LatestAudienceDetails 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:

Possible parameter values:

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:

Possible parameter values:

Value	Description
0	The audience compilation job has not been recorded as successfully started. 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.

### 2.2.5.12 AudienceIdentifier

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.

### 2.2.5.13 SearchedMembers

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.

### 2.2.5.14 AudienceMembers

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.

### 2.2.5.15 AllAudienceDetails

The AllAudienceDetails 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 if Collation is valid 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 [2.2.1.1](#).

**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.

### 2.2.5.16 AudienceSummaries

The AudienceSummaries 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),
PartitionID uniqueidentifier,
```

**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.

**PartitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

### 2.2.5.17 RemovedAudiences

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),
DeleteTime datetime,
PartitionID uniqueidentifier,
```

**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.

**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.

**PartitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

### 2.2.5.18 SearchedAudiences

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 [2.2.1.1](#).

**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.

### 2.2.5.19 UpdateAudienceRule

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),  
XMLOrgleNameERR int,  
XMLOrgleQueryErr int,  
XMLOrgleOpErr int,  
XMLRulesOverflow int,  
Error int,
```

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

**XMLOrgleNameERR:** 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 because of an error evaluating the query. The value MUST be listed in the following table.

Value	Description
0	No error was encountered evaluating the query.
>0	An error was encountered evaluating the query.

**XMLOrgleOpErr:** This specifies whether the update failed because of 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 because of an error encountered because the audience rule definition was longer than the maximum allowed length of 8,000 characters. The value MUST be listed in the following table.

Value	Description
0	No error was encountered because of the length of the definition of the audience rule.
1	An error was encountered because of 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 ( <b>XMLOrgleNameErr</b> , <b>XMLOrgleQueryErr</b> , <b>XMLOrgleOpErr</b> , or <b>XMLRulesOverflow</b> ) to a value other than 0.

## 2.2.6 Tables and Views

None.

## 2.2.7 XML Structures

No common XML Structures are defined in this protocol.

### **2.2.7.1 Namespaces**

This specification does not define any common XML Schema namespace definitions.

### **2.2.7.2 Simple Types**

This specification does not define any common XML Schema simple type definitions.

### **2.2.7.3 Complex Types**

This specification does not define any common XML Schema complex type definitions.

### **2.2.7.4 Elements**

This specification does not define any common XML Schema element definitions.

### **2.2.7.5 Attributes**

This specification does not define any common XML Schema attribute definitions.

### **2.2.7.6 Groups**

This specification does not define any common XML Schema group definition.

### **2.2.7.7 Attribute Groups**

This specification does not define any common XML Schema attribute group definitions.

## 3 Protocol Details

### 3.1 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 Higher-Layer Triggered Events

None.

### 3.1.5 Message Processing Events and Sequencing Rules

This section describes the following stored procedures:

Procedure Name	Description
<b>Orgle_AddRemoveOrgleName</b>	Adds an audience to the store or removes an audience from the store.
<b>Orgle_RemoveOrgle</b>	Removes an audience from the store.
<b>Orgle_UpdateOrgleName</b>	Updates the persisted properties of an audience in the store.
<b>Orgle_GetOrgleRules</b>	Gets the audience rule for an audience in the store.
<b>Orgle_UpdateOrgleRules</b>	Updates the audience rule for particular audiences in the store.
<b>Orgle_RunOrgleRules</b>	Invokes audience compilation for an audience in the store.
<b>Orgle_GetOrgleMembers</b>	Gets the set of audience members of an audience.
<b>Orgle_MemberOfAudience</b>	Identifies whether a specified user profile is an audience member

Procedure Name	Description
	of an audience specified by an identifier.
<b>Orgle_MemberOfAudienceByName</b>	Identifies whether a specified user profile is an audience member of an audience specified by name.
<b>Orgle_SearchMember</b>	Gets the set of audience members of an audience that match specified criteria.
<b>Orgle_SearchOrgle</b>	Gets the set of audiences in the store that match specified criteria.
<b>Audience_SearchAudienceAndDL</b>	Gets the set of audiences and distribution lists in the store that match specified criteria.
<b>Orgle_GetUserOrgleList</b>	Gets the set of audiences of which a specified user profile is an audience member.
<b>Orgle_GetOverallStats</b>	Gets information about the status of the audiences store.
<b>Orgle_GetOrgleNamesFromIDs</b>	Gets summary information about a set of audiences specified by audience identifiers.
<b>Orgle_GetOrgleOperatorList</b>	Gets the set of logical operators usable in an audience rule.
<b>Orgle_GetEveryoneString</b>	Gets the localized string value for the English string 'User'.
<b>Orgle_GetOrgleDetail</b>	Gets information about a particular audience in the store.
<b>Orgle_GetOrgleList</b>	Gets the set of all audiences in the store using a specified collation order.
<b>Orgle_GetOrgleListAll</b>	Gets the set of all audiences in the store.
<b>Orgle_Job_Start</b>	Records the beginning of the audience compilation job.
<b>Orgle_Job_Stop</b>	Records the cancellation of the audience compilation job.
<b>Orgle_Job_End</b>	Records the completion of the audience compilation job.
<b>Orgle_Job_Continue</b>	Queries the tracking data of the audience compilation job to determine if it is currently running.
<b>Orgle_Job_ErrorLog</b>	Records the error state associated with the audience compilation job.
<b>Orgle_sr_UpdateQueryResult</b>	Updates a query result associated with a particular audience.
<b>Orgle_sr_UpdateReportChain</b>	Checks and updates the report chain (defined in section <a href="#">3.1.5.27</a> ) if needed.
<b>Orgle_job_Lock</b>	Enables the audience compilation lock of a particular audience.
<b>Orgle_job_UnLock</b>	Disables the audience compilation lock of a particular audience.

### 3.1.5.1 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 (  
  @partitionID uniqueidentifier  
  ,@SearchString nvarchar(250)  
  ,@SearchStringUnEncoded nvarchar(250)  
  ,@AudienceType int  
  ,@PageIndex int  
  ,@PageSize int  
  ,@AudienceGuid uniqueidentifier  
  ,@correlationId uniqueidentifier = null  
  );
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@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.

**@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.

**@correlationId:** This MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which is the count of searched items which match the input search criteria.

**Result Sets:**

This stored procedure MUST return a [SearchedAudiencesAndDLs](#)

### 3.1.5.2 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 (  
    @partitionID uniqueidentifier  
    ,@OrgleName nvarchar(500)  
    ,@OrgleDescription nvarchar(1500) = null  
    ,@OwnerAccountName nvarchar(400) = null  
    ,@bRemove bit = 0  
    ,@GroupType smallint = 0  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

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

Value	Description
0	The audience 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 [2.2.1.1.1](#).

**@correlationId:** This MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return a [AddRemoveAudience](#)

### 3.1.5.3 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 (
    @partitionID uniqueidentifier
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return a [LocalizedEveryoneString](#)

### 3.1.5.4 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 (
    @partitionID uniqueidentifier
    ,@OrgleID uniqueidentifier
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return an [AudienceDetails](#)

### 3.1.5.5 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 (
    @partitionID uniqueidentifier
    ,@Collation nvarchar(60)
    ,@correlationId uniqueidentifier = null
);
```

);

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

For the following combination of parameters,

**@Collation:** invalid Collation

This stored procedure MUST NOT return any result sets.

For the following combination of parameters,

**@partitionID:** invalid partitionID

This stored procedure MUST NOT return any result sets.

For the following combination of parameters,

**@partitionID:** valid partitionID

**@Collation:** valid Collation

This stored procedure MUST return a [AllAudienceDetails](#)

### 3.1.5.6 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 (  
    @partitionID uniqueidentifier  
    ,@Collation nvarchar(60) = null  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return a [AllAudiences](#)



### 3.1.5.7 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 (  
    @partitionID uniqueidentifier  
    ,@OrgleName nvarchar(200)  
    ,@Collation nvarchar(60)  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be in the following table.

Value	Description
1	The audience compilation lock was enabled on the specified audience.
0	Successful execution.

#### Result Sets:

For the following combination of parameters,

**@partitionID:** valid PartitionID

**@OrgleName:** All site users

**@Collation:** valid collation name

This stored procedure MUST return a [AudienceMembers](#)

### 3.1.5.8 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 (  
    @partitionID uniqueidentifier  
    ,@AudienceIDs varchar(7000)  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

For the following combination of parameters,

**@partitionID:** valid partitionID

**@AudienceIDs:** valid AudienceIDs

This stored procedure MUST return a [AudienceSummaries](#)

This stored procedure MUST return a [RemovedAudiences](#)

### 3.1.5.9 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 (  
  @partitionID uniqueidentifier  
  ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return a [OperatorList](#)

### 3.1.5.10 Orgle\_GetOrgleRules

The **Orgle\_GetOrgleRules** stored procedure is invoked to retrieve the definition of the audience rule for a specified audience. **Orgle\_getOrgleRules** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_GetOrgleRules (  
  @partitionID uniqueidentifier  
  ,@OrgleName nvarchar(200)
```

```
,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return a [AudienceRule](#)

### 3.1.5.11 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 (
    @partitionID uniqueidentifier
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return a [AudienceStatistics](#)

### 3.1.5.12 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 (
    @partitionID uniqueidentifier
    ,@UserID uniqueidentifier = null
    ,@NTName nvarchar(400) = null
    ,@SID varbinary(512) = null
    ,@GetAudiences bit = 0
    ,@GetMemberships bit = 0
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

#### **Result Sets:**

If **@GetAudiences** is 1, this stored procedure MUST return a [Audiences](#)

If **@GetMemberships** is 1, this stored procedure MUST return a [DistributionLists](#)

For the following combination of parameters,

**@GetAudiences: 1**

**@GetMemberships: 0**

This stored procedure MUST return a Audiences

For the following combination of parameters,

**@GetAudiences: 0**

**@GetMemberships: 1**

This stored procedure MUST return a DistributionLists

For the following combination of parameters,

**@GetAudiences: 1**

**@GetMemberships: 1**

This stored procedure MUST return as its first return set a Audiences

This stored procedure MUST return as its second return set a DistributionLists

For the following combination of parameters, this stored procedure MUST NOT return any result sets.

**@GetAudiences: 0**

**@GetMemberships: 0**

### 3.1.5.13 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 (
    @partitionID uniqueidentifier
    ,@bContinue bit OUTPUT
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.14 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 (
    @partitionID uniqueidentifier
    ,@bSingleAudience bit = 0
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.15 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 (  
  @partitionID uniqueidentifier  
  ,@AudienceName nvarchar(200)  
  ,@ErrorID int  
  ,@QueryID bigint  
  ,@ErrorString nvarchar(3800)  
  ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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 <b>Orgle_Job_Start</b> stored procedure.
2	User profile import is currently in progress.
3	<b>Orgle_Job_Start</b> 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 <b>Orgle_Job_End</b> stored procedure to finalize the status.
5	There was an attempt to cancel the audience compilation job by calling the <b>Orgle_Job_Stop</b> stored procedure, but the operation failed.
6	The audience compilation lock was not successfully enabled for a specific audience via the <b>Orgle_job_Lock</b> stored procedure.
7	An unexpected error occurred while performing audience compilation of a specific audience rule. The failure occurred while executing the <b>Orgle_RunOrgleRules</b> stored procedure. If this value is set, the value of the of the <i>@QueryID</i> parameter MUST NOT be set to 0.
8	An unexpected error occurred while disabling the audience compilation lock for a specific audience via the <b>Orgle_job_UnLock</b> 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.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.16 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 (
    @partitionID uniqueidentifier
```

```

,@OrgleName nvarchar(200)
,@OrgleLock bit OUTPUT
,@correlationId uniqueidentifier = null
);

```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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. 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. 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.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.17 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 [3.1.5.15](#)) associated with the audience compilation job. **Orgle\_Job\_Start** is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_Job_Start (
@partitionID uniqueidentifier
,@bSingleAudience bit
,@correlationId uniqueidentifier = null
);

```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@correlationId:** The value MUST be set to NULL and MUST be ignored by the server.



**Return Values:** An integer which MUST be 0.

**Result Sets:**

This stored procedure MUST return a [LatestAudienceDetails](#)

### 3.1.5.18 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** returns the same result whether or not the audience compilation job is in progress at the time the stored procedure is invoked. **Orgle\_Job\_Stop** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_Job_Stop (  
    @partitionID uniqueidentifier  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@correlationId:** The value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.19 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 (  
    @partitionID uniqueidentifier  
    ,@OrgleName nvarchar(200)  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@correlationId:** The value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.20 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 (
    @partitionID uniqueidentifier
    ,@NTName nvarchar(400)
    ,@OrgleName nvarchar(200)
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 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:

This stored procedure MUST return an [AudienceIdentifier](#)

### 3.1.5.21 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 (
    @partitionID uniqueidentifier
    ,@NTName nvarchar(400)
    ,@OrgleID uniqueidentifier
    ,@correlationId uniqueidentifier = null
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 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:** MUST NOT return any result sets.

### 3.1.5.22 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 (  
    @partitionID uniqueidentifier  
    ,@OrgleID uniqueidentifier  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

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

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 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.
1000	Error indicating the audience has already been removed.
All Other Values	Error indicating the audience was not removed because of an unspecified failure.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.23 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 SHOULD disable the audience compilation lock of the specified audience upon completion of the stored procedure. Orgle\_RunOrgleRules is defined using T-SQL syntax, as follows:

```

PROCEDURE Orgle_RunOrgleRules (
    @partitionID uniqueidentifier
    ,@OrgleName nvarchar(200)
    ,@ForceRun bit = 0
    ,@correlationId uniqueidentifier = null
);

```

**@partitionID:** A GUID used to filter the current request. This value **MUST NOT** be null or empty.

**@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.

Value	Description
0	Audience compilation <b>MUST</b> be performed conditionally based on the following criteria: If the specified audience has never had audience compilation performed, then audience compilation <b>MUST</b> be performed. If user profile import has run after the most recent audience compilation on the specified audience, then audience compilation <b>MUST</b> be performed. If the audience rule of the audience has been modified after the most recent audience compilation on the audience, then audience compilation <b>MUST</b> be performed. Otherwise audience compilation for the specified audience <b>SHOULD NOT</b> need to be performed.
1	Audience compilation <b>MUST</b> always be performed for the specified audience.

**@correlationId:** This value **MUST** be set to NULL and **MUST** be ignored by the server.

**Return Values:** An integer which **MUST** be 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.
<b>All Other Values</b>	Unspecified failure during audience compilation.

**Result Sets:** **MUST NOT** return any result sets.

### 3.1.5.24 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 property 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 (
    @partitionID uniqueidentifier
    ,@OrgleID uniqueidentifier
    ,@bAccountName bit
    ,@bPreferredName bit
);

```

```

, @bEmail bit
, @SearchString nvarchar(250)
, @TotalRowCount int OUTPUT
, @correlationId uniqueidentifier = null
);

```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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 property for each audience member. The user profile property to match against is determined by the values of *@bAccountName*, *@bPreferredName* and *@bEmail*. The user profile property 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.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

#### **Result Sets:**

This stored procedure MUST return a [SearchedMembers](#) if the specified audience exists and its audience compilation lock is enabled, otherwise it MUST NOT return a result set.

### **3.1.5.25 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 (
  @partitionID uniqueidentifier
  , @SearchString nvarchar(250)
  , @RowCountStart int
  , @RowCountEnd int
  , @SearchScope int
  , @Collation nvarchar(60)
)

```

```

, @TotalRowCount int OUTPUT
, @correlationId uniqueidentifier = null
);

```

**@partitionID:** A GUID used to filter the current request. This value **MUST NOT** be null or empty.

**@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.

**@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.

**@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.

Value	Description
<b>orgle_list.count</b>	An integer which is the total number of audiences in the orgle_list.

**@correlationId:** This value **MUST** be set to NULL and **MUST** be ignored by the server.

**Return Values:** An integer which **MUST** be 0.

**Result Sets:**

For the following combination of parameters,

**@partitionID:** valid partitionID

**@Collation:** valid Collation

This stored procedure **MUST** return a [SearchedAudiences](#)

For the following combination of parameters, **@Collation:** invalid Collation this stored procedure **MUST NOT** return any result sets.

### 3.1.5.26 Orgle\_sr\_UpdateQueryResult

The **Orgle\_sr\_UpdateQueryResult** stored procedure is invoked to update a query result associated with a particular audience. **Orgle\_sr\_UpdateQueryResult** is defined using T-SQL syntax, as follows

```

PROCEDURE Orgle_sr_UpdateQueryResult (
  @partitionID uniqueidentifier
  , @OrgleID uniqueidentifier
  , @OrgleQueryID bigint
  , @correlationId uniqueidentifier = null
)

```

);

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@OrgleID:** The audience identifier assigned to the audience owning the query to update.

**@OrgleQueryID:** The query identifier assigned to the query to update.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be in the following table.

Value	Description
0	Successful execution.
2000	The identified query was not found.
All Other Values	Unspecified failure to update the query result.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.27 Orgle\_sr\_UpdateReportChain

The **Orgle\_sr\_UpdateReportChain** stored procedure is invoked to check and update the report chain (defined as this node, its parents, peers, and direct reports) if needed.

**Orgle\_sr\_UpdateReportChain** is defined using T-SQL syntax, as follows:

```
PROCEDURE Orgle_sr_UpdateReportChain (  
    @partitionID uniqueidentifier  
    ,@correlationId uniqueidentifier = null  
);
```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be in the following table.

Value	Description
0	Successful execution.
700	Unspecified error.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.28 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 (  

```

```

@partitionID uniqueidentifier
,@OrgleID uniqueidentifier
,@OrgleName nvarchar(200)
,@OrgleDescription nvarchar(1500) = null
,@OwnerAccountName nvarchar(400) = null
,@GroupType smallint = null
,@correlationId uniqueidentifier = null
);

```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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.

**@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 [2.2.1.1](#).

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.5.29 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 (
@partitionID uniqueidentifier
,@OrgleRuleList ntext
,@correlationId uniqueidentifier = null
);

```

**@partitionID:** A GUID used to filter the current request. This value MUST NOT be null or empty.

**@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="<" />
    <xs:enumeration value="<=" />
    <xs:enumeration value="Contains" />
    <xs:enumeration value="Reports Under" />
    <xs:enumeration value="<>" />
    <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 **ORGL**E 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** (defined in section [3.1.1.3](#)), **LogicalAnd**, **LogicalOr**, **GroupStart** and **GroupEnd** clause in the ABNF representation of the audience rule MUST correspond to a single child **QUERY** element of the **ORGL**E 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**.

**@correlationId:** This value Must be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be in the following table.

Value	Description
0	Successful execution.
NOT 0	The audience rule update operation failed.

#### Result Sets:

For the following combination of parameters,

**@partitionID:** valid partitionID

**@OrgleRuleList:** valid XML document

This stored procedure MUST return a [UpdateAudienceRule](#)

### 3.1.5.30 profile\_Admin\_GetAudienceStatistics

The **profile\_Admin\_GetAudienceStatistics** stored procedure is invoked to get the count of compiled and not compiled audiences contained in the protocol server store.

**profile\_Admin\_GetAudienceStatistics** is defined using T-SQL syntax, as follows:

```
PROCEDURE profile_Admin_GetAudienceStatistics (  
    @audienceCount int OUTPUT  
    ,@uncompiledAudienceCount int OUTPUT  
    ,@correlationId uniqueidentifier = null  
);
```

**@audienceCount:** An integer output value that will receive the count of compiled audiences contained in the protocol server store. Any input value MUST be ignored.

**@uncompiledAudienceCount:** An integer output value that will receive the count of audiences contained in the protocol server store which are not compiled. Any input value MUST be ignored.

**@correlationId:** This value MUST be set to NULL and MUST be ignored by the server.

**Return Values:** An integer which MUST be 0.

**Result Sets:** MUST NOT return any result sets.

### 3.1.6 Timer Events

None.

### 3.1.7 Other Local Events

None.

## **3.2 Client 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.

### **3.2.1 Abstract Data Model**

None.

### **3.2.2 Timers**

None.

### **3.2.3 Initialization**

None.

### **3.2.4 Higher-Layer Triggered Events**

None.

### **3.2.5 Message Processing Events and Sequencing Rules**

None.

### **3.2.6 Timer Events**

None.

### **3.2.7 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
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';
    @OrgleName = 'HR managers',
    @OrgleDescription = 'All managers in the HR department',
    @OwnerAccountName = 'contoso\corets',
    @bRemove = 0,
    @GroupType = 2,
    @correlationId = NULL
```

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
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';
    @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>',
    @correlationId = NULL
```

### 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
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';
    @SearchString = 'HR',
    @RowCountStart = 1,
    @RowCountEnd = 100,
    @SearchScope = 2,
    @Collation = 'Latin1_General_CI_AI',
    @TotalRowCount OUTPUT;
    @correlationId = NULL
```

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
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';
    @OrgleID = 'AAAABBBB-CCCC-DDDD-EEEE-FFFF00001111',
    @correlationId = NULL
```

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
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';
    @OrgleID = '01234567-0123-4567-89AB-0123456789AB',
    @OrgleName = 'HR managers',
    @OrgleDescription = 'Managers in Human Resources',
    @OwnerAccountName = 'contoso\park',
    @GroupType = NULL,
    @correlationId = NULL
```

### 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
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';
    @UserID = NULL,
    @NTName = 'contoso\corets',
    @SID = NULL,
    @GetAudiences = 1,
    @GetMemberships = 1,
    @correlationId = NULL
```

### 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 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
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';
    @NTName = 'contoso\park',
```

```
@OrgleID = '01234567-0123-4567-89AB-0123456789AB';  
@correlationId = NULL;
```

## 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  
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';  
    @bSingleAudience = 0;  
    @correlationId = NULL;  
  
exec dbo.Orgle_job_Lock  
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';  
    @OrgleName = 'HR managers',  
    @OrgleLock OUTPUT;  
    @correlationId = NULL;  
  
exec dbo.Orgle_RunOrgleRules  
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';  
    @OrgleName = 'HR managers',  
    @ForceRun = 0,  
    @correlationId = NULL;  
  
exec dbo.Orgle_job_UnLock  
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';  
    @OrgleName = 'HR managers';  
    @correlationId = NULL;  
  
exec dbo.Orgle_Job_End  
    @partitionID = '01234567-0123-4567-89AB-0123456789AB';  
    @bSingleAudience = 0;  
    @correlationId = NULL;
```



## 4.6 Get Audience Statistics

This protocol can be used to gather quick statistics about the number of audiences currently stored. Consider the following T-SQL syntax call which a protocol client can make to `profile_Admin_GetAudienceStatistics`.

```
declare @RC int
declare @audienceCount int
declare @uncompiledAudienceCount int

exec dbo.profile_Admin_GetAudienceStatistics
@audienceCount OUTPUT,
@uncompiledAudienceCount OUTPUT,
@correlationId='806597C7-2A34-4BB3-A807-A8664115E8D1'

select @audienceCount as audienceCount, @uncompiledAudienceCount as uncompiledAudienceCount
```

The protocol server returns a value of 0, which is ignored. Consider also the following example data which could be returned by the protocol server:

```
audienceCount
4
uncompiledAudienceCount
1
```

## 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® SharePoint® Server 2010
- 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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