

# [MS-WSSREST]: ListData Data Service Protocol Specification

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## Revision Summary

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# 1 Introduction

This document specifies the ListData Data Service Protocol extensions to the Atom Publishing Protocol (AtomPub) [RFC5023] and its extensions specified in Atom Publishing Protocol: Data Services URI and Payload Extensions [MC-APDSU].

The extensions specified in this document enable applications to expose list data, using common web technologies, as a data service that can be consumed by clients within corporate networks and across the Internet.

## 1.1 Glossary

The following terms are defined in [MS-OFCGLOS]:

**attachment**  
**content type identifier**  
**document**  
**document library**  
**Entity**  
**field**  
**field definition**  
**field type**  
**hidden**  
**list**  
**list item**  
**list item identifier**  
**site**  
**Uniform Resource Locator (URL)**

The following terms are specific to this document:

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

## 1.2 References

### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](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.

[MC-APDSU] Microsoft Corporation, "[http://msdn.microsoft.com/en-us/library/dd541188\(PROT.10\).aspx](http://msdn.microsoft.com/en-us/library/dd541188(PROT.10).aspx)"

[MC-CSDL] Microsoft Corporation, "[Conceptual Schema Definition File Format](#)".

[MS-WSSTS] Microsoft Corporation, "[Windows SharePoint Services Technical 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>

[RFC5023] Gregorio, J. Ed., and de hOra, B., Ed., "The Atom Publishing Protocol", RFC 5023, October 2007, <http://www.ietf.org/rfc/rfc5023.txt>

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, <http://www.w3.org/TR/2001/NOTE-wsdl-20010315>

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

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, <http://www.ietf.org/rfc/rfc2616.txt>

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, <http://www.ietf.org/rfc/rfc2818.txt>

## 1.3 Protocol Overview (Synopsis)

This protocol enables protocol clients to manage lists of data maintained by a protocol server. The protocol allows the client to control list data stored within the lists. A typical scenario for using this protocol is a data tracking application that allows users to access data remotely. Such an application could use this protocol to provide users with a way to maintain data on a central protocol server and access it through multiple protocol clients at different locations.

### 1.3.1 Roles

Two roles are always being played whenever this protocol is used. There is always a protocol client issuing requests to a protocol server, and there is always a protocol server to receive, process, and respond to the requests of protocol clients.

### 1.3.2 Protocol Server

The protocol server implements the Web service described by this protocol. It also maintains lists of data that are manipulated through that Web service.

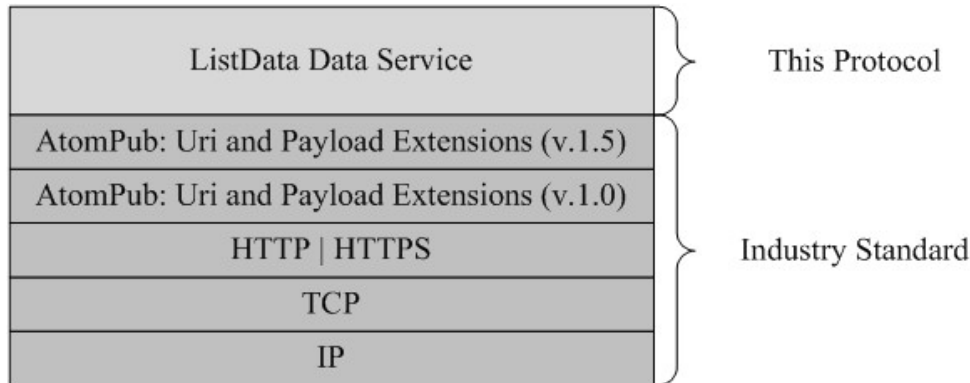
### 1.3.3 Protocol Client

Protocol clients issue commands to the protocol server via the Web service methods described in this protocol.

## 1.4 Relationship to Other Protocols

This protocol uses the AtomPub messaging protocol for formatting requests and responses as described in [\[RFC5023\]](#) and Uri and Payload Extensions to AtomPub protocol as described in [MC-APDSU]. It transmits these messages using the HTTP protocol as described in [\[RFC2616\]](#) or the HTTPS protocol as described in [\[RFC2818\]](#).

The following diagram shows the underlying messaging and transport stack that the protocol uses:



**Figure 1: This protocol in relation to other protocols**

## 1.5 Prerequisites/Preconditions

This protocol operates against a **site** that is identified by a **URL** that is known by protocol clients. It is a prerequisite that the client obtain a URL to the server before these extensions can be used.

## 1.6 Applicability Statement

AtomPub, as described in [RFC5023](#), in combination with the extensions defined in this document, is appropriate for use in Web services that need a uniform, flexible, general purpose interface for exposing create/retrieve update/delete operations on a data model to clients. It is less suited for Web services that are primarily method-oriented or in which data operations are constrained to certain prescribed patterns.

## 1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

- **Supported Transports:** This document can be implemented on top of the Atom Publishing Protocol as described in section [2.1](#).
- **Protocol Versions:** Clients specify the protocol version as described in [MC-APDSU].
- **Localization:** This document does not specify any localization-dependent behavior.
- **Capability Negotiation:** Capability negotiation is performed as described in [MC-APDSU].

## 1.8 Vendor-Extensible Fields

None.

## 1.9 Standards Assignments

None.

## **2 Messages**

### **2.1 Transport**

No new transports are required except for those specified in [MC-APDSU] section [2.1](#).

### **2.2 Common Message Syntax**

None.

#### **2.2.1 Namespaces**

None.

#### **2.2.2 Messages**

None.

#### **2.2.3 Elements**

None.

#### **2.2.4 Complex Types**

None.

#### **2.2.5 Simple Types**

None.

#### **2.2.6 Attributes**

None.

#### **2.2.7 Groups**

None.

#### **2.2.8 Attribute Groups**

None.

### **2.3 Directory Service Schema Elements**

None.



## 3 Protocol Details

### 3.1 Server Details

#### 3.1.1 Abstract Data Model

This section describes the relationship between the abstract data model as specified in [\[MS-WSSTS\]](#) section 2.1.2.7 and the Entity Data Model as specified in [\[MC-CSDL\]](#). The mapping between Entity Data Model concepts and those of the AtomPub specification is specified in [\[MC-APDSU\]](#) section [2.2.1](#). The described relationship 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 the behavior specified in [\[MC-APDSU\]](#) and [\[MC-CSDL\]](#).

Data structures as specified in [\[MS-WSSTS\]](#) map to Entity Data Model terms as shown in the following table:

Site and list data structure	Entity Data Model term
List	EntitySet
Lookup Field	NavigationProperty
Choice Field	NavigationProperty
Attachments Field	NavigationProperty
ID Field	EntityKey

##### 3.1.1.1 List Items

Every **list item** is represented as an **Entity** of a particular EntityType as specified in [\[MC-CSDL\]](#). EntityTypes are created based on the **list** to which the list item belongs. Properties on the EntityType correspond to **fields** of the list, with the field's type determining the type of the property (primitive vs. navigation).

The following table details the mapping between **field types**, as specified in [\[MS-WSSTS\]](#) section 2.3.1, and Entity Data Model property types:

Field type	Entity Data Model property type
AllDayEvent	Primitive (Boolean)
Attachments	Navigation
Boolean	Primitive (Boolean)
Choice	Navigation
ContentTypeId	Primitive (String)
Counter	Primitive (Int32)
CrossProjectLink	Primitive (Boolean)
Currency	Primitive (Double)

Field type	Entity Data Model property type
DateTime	Primitive (DateTime)
File	Primitive (String)
GridChoice	Primitive (String)
Integer	Primitive (Int32)
Lookup	Navigation
MaxItems	Primitive (Int32)
ModStat	Primitive (String)
MultiChoice	Navigation
Note	Primitive (String)
Number	Primitive (Double)
PageSeparator	Primitive (String)
Recurrence	Primitive (Boolean)
Text	Primitive (String)
ThreadIndex	Primitive (Int32)
URL	Primitive (String)
User	Navigation
WorkflowEventType	Primitive (String)
WorkflowStatus	Primitive (Int32)

### 3.1.1.2 Lists

Each list is represented as an EntitySet [\[MC-CSDL\]](#), which contains Entities of a single EntityType. This EntityType contains properties for every non-**hidden** field in the list whose field type is supported as well as a subset of hidden fields. List of supported field types and their mappings to the Entity Data Model property types is specified in section [3.1.1.1](#).

The following table specifies minimum set of hidden fields, as specified in [\[MS-WSSTS\]](#) section 2.4.2, which MUST be surfaced by server:

Field internal name	Entity Data Model property name
ID	Id
Owshiddenversion	Owshiddenversion
FileDirRef	Path

The **list item identifier** represents the EntityKey of the EntityType and **Owshiddenversion** field serves as the ETag property of the EntityType. The **FileDirRef** field represents the list item's server-relative path.

### 3.1.1.3 Documents

**Document libraries** are represented as EntityTypes that have an associated media resource.

Inserting new **documents** to a document library involve sending a POST request containing the contents of the document to the EntitySet representing the document library. The protocol client MUST include the SLUG header (as specified in [\[RFC5023\]](#) section 9.7) whose value is the name of the file that is being created in their POST requests. The client MAY include the **content type identifier** of the document. If the content type identifier is omitted, the document will be assigned the default content type identifier of the document library. The Augmented BNF for SLUG header construction when inserting new documents is as follows:

```
slug      = path [ "|" contenttype ]

path      = serverpath
           "/"
           filename

serverpath = *pchar                ; section 3.3 of [RFC3986]
           ; server-relative path of document

filename   = *pchar                ; section 3.3 of [RFC3986]
           ; desired name of the document including its extension

contenttype = *pchar                ; section 3.3 of [RFC3986]
           ; content type identifier of the document
```

### 3.1.1.4 Attachments

To facilitate create/retrieve update/delete operations support for list item **attachments**, an additional EntitySet is created. This EntitySet does not correspond to any list. Attachments are represented as a multi-valued navigation property on an Entity.

The EntityType for this EntitySet contains a single property "URL", which also serves as its EntityKey [\[MC-CSDL\]](#).

The protocol client MUST include a SLUG header whose value is the name of the EntitySet followed by the identifier of the entity the attachment belongs to as well as the name of the attachment. The Augmented BNF for SLUG header construction when inserting new attachments is as follows:

```
slug      = entityset "|" entityid "|" filename

entityset  = *pchar                ; section 3.3 of [RFC3986]
           ; the name of an Entity Set in the EDM model in which the attachment belongs to

entityid   = *pchar                ; section 3.3 of [RFC3986]
           ; the ID of the entity to which this attachment belongs to

filename   = *pchar                ; section 3.3 of [RFC3986]
           ; desired name of attachment including its extension
```

#### 3.1.1.5 Choice and Multi-Choice Fields

An EntitySet is created for every choice or multi-choice field belonging to a list. For a particular choice or multi-choice field, this EntitySet will contain Entities representing each option of the field specified in the **field definition** of the field.

The EntityType for this EntitySet contains a single property "Value", which also serves as its EntityKey [\[MC-CSDL\]](#).

Choice and multi-choice fields are mapped as navigation properties between the EntityType corresponding to the list item and the EntityType mentioned earlier.

#### 3.1.2 Timers

None.

#### 3.1.3 Initialization

None.

#### 3.1.4 Message Processing Events and Sequencing Rules

For more details, see [MC-APDSU] section [3.2.5](#).

#### 3.1.5 Timer Events

None.

#### 3.1.6 Other Local Events

None.

## 4 Protocol Examples

All examples in this section use the sample site data shown in Appendix A: Sample Site Data, section 6.

### 4.1 Retrieve a CSDL Document

The following example illustrates the exchange of messages required for a client to retrieve the conceptual schema definition language (CSDL) document of a data service using the AtomPub format.

HTTP Request:

```
GET /_vti_bin/ListData.svc/$metadata HTTP/1.1
Accept: application/xml
Host: www.contoso.com
```

HTTP Response:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<edmx:Edmx Version="1.0" xmlns:edmx="http://schemas.microsoft.com/ado/2007/06/edmx">
  <edmx:DataServices>
    <Schema Namespace="Microsoft.SharePoint.DataService"
      xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
      xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
      xmlns:m2="http://schemas.microsoft.com/ado/2008/11/dataservices/metadata"
      xmlns="http://schemas.microsoft.com/ado/2007/05/edm">
      <EntityType Name="Attachments" m2:HasStream="$default">
        <Key>
          <PropertyRef Name="Url" />
        </Key>
        <Property Name="Url" Type="Edm.String" Nullable="false" />
      </EntityType>
      <EntityType Name="EmployeesItem">
        <Key>
          <PropertyRef Name="ID" />
        </Key>
        <Property Name="FullName" Type="Edm.String" Nullable="true" m2:EpmAtom="true"
          m2:EpmTargetPath="EpmSyndicationTitle" m2:EpmContentKind="EpmPlaintext"
          m2:EpmKeepContent="true" />
        <Property Name="HireDate" Type="Edm.DateTime" Nullable="true" />
        <Property Name="Salary" Type="Edm.Double" Nullable="true" />
        <NavigationProperty Name="Projects"
          Relationship="Microsoft.SharePoint.DataService.EmployeesItem_Projects"
          FromRole="EmployeesItem" ToRole="Projects" />
        <Property Name="ID" Type="Edm.Int32" Nullable="false" />
        <Property Name="Modified" Type="Edm.DateTime" Nullable="true" />
        <Property Name="Created" Type="Edm.DateTime" Nullable="true" />
        <NavigationProperty Name="CreatedBy"
          Relationship="Microsoft.SharePoint.DataService.EmployeesItem_CreatedBy"
          FromRole="EmployeesItem" ToRole="CreatedBy" />
        <NavigationProperty Name="ModifiedBy"
          Relationship="Microsoft.SharePoint.DataService.EmployeesItem_ModifiedBy"
          FromRole="EmployeesItem" ToRole="ModifiedBy" />
        <Property Name="Owshiddenversion" Type="Edm.Int32" Nullable="true"
          ConcurrencyMode="Fixed" />
      </EntityType>
    </Schema>
  </edmx:DataServices>
</edmx:Edmx>
```

```

    <Property Name="Version" Type="Edm.String" Nullable="true" />
    <NavigationProperty Name="Attachments"
      Relationship="Microsoft.SharePoint.DataService.EmployeesItem_Attachments"
      FromRole="EmployeesItem" ToRole="Attachments" />
    <Property Name="Path" Type="Edm.String" Nullable="true" />
  </EntityType>
  <EntityType Name="LocationsItem">
    <Key>
      <PropertyRef Name="ID" />
    </Key>
    <Property Name="Name" Type="Edm.String" Nullable="true" m2:EpmAtom="true"
      m2:EpmTargetPath="EpmSyndicationTitle" m2:EpmContentKind="EpmPlaintext"
      m2:EpmKeepContent="true" />
    <Property Name="Address" Type="Edm.String" Nullable="true" />
    <Property Name="City" Type="Edm.String" Nullable="true" />
    <Property Name="State" Type="Edm.String" Nullable="true" />
    <Property Name="ZipCode" Type="Edm.String" Nullable="true" />
    <Property Name="ID" Type="Edm.Int32" Nullable="false" />
    <Property Name="Modified" Type="Edm.DateTime" Nullable="true" />
    <Property Name="Created" Type="Edm.DateTime" Nullable="true" />
    <NavigationProperty Name="CreatedBy"
      Relationship="Microsoft.SharePoint.DataService.LocationsItem_CreatedBy"
      FromRole="LocationsItem" ToRole="CreatedBy" />
    <NavigationProperty Name="ModifiedBy"
      Relationship="Microsoft.SharePoint.DataService.LocationsItem_ModifiedBy"
      FromRole="LocationsItem" ToRole="ModifiedBy" />
    <Property Name="Owshiddenversion" Type="Edm.Int32" Nullable="true"
      ConcurrencyMode="Fixed" />
    <Property Name="Version" Type="Edm.String" Nullable="true" />
    <Property Name="Path" Type="Edm.String" Nullable="true" />
  </EntityType>
  <EntityType Name="ProjectsItem">
    <Key>
      <PropertyRef Name="ID" />
    </Key>
    <Property Name="Title" Type="Edm.String" Nullable="true" m2:EpmAtom="true"
      m2:EpmTargetPath="EpmSyndicationTitle" m2:EpmContentKind="EpmPlaintext"
      m2:EpmKeepContent="true" />
    <Property Name="Description" Type="Edm.String" Nullable="true" />
    <Property Name="DueDate" Type="Edm.DateTime" Nullable="true" />
    <NavigationProperty Name="Location"
      Relationship="Microsoft.SharePoint.DataService.ProjectsItem_Location"
      FromRole="ProjectsItem" ToRole="Location" />
    <Property Name="ID" Type="Edm.Int32" Nullable="false" />
    <Property Name="Modified" Type="Edm.DateTime" Nullable="true" />
    <Property Name="Created" Type="Edm.DateTime" Nullable="true" />
    <NavigationProperty Name="CreatedBy"
      Relationship="Microsoft.SharePoint.DataService.ProjectsItem_CreatedBy"
      FromRole="ProjectsItem" ToRole="CreatedBy" />
    <NavigationProperty Name="ModifiedBy"
      Relationship="Microsoft.SharePoint.DataService.ProjectsItem_ModifiedBy"
      FromRole="ProjectsItem" ToRole="ModifiedBy" />
    <Property Name="Owshiddenversion" Type="Edm.Int32" Nullable="true"
      ConcurrencyMode="Fixed" />
    <Property Name="Version" Type="Edm.String" Nullable="true" />
    <NavigationProperty Name="Attachments"
      Relationship="Microsoft.SharePoint.DataService.ProjectsItem_Attachments"
      FromRole="ProjectsItem" ToRole="Attachments" />
    <Property Name="Path" Type="Edm.String" Nullable="true" />
  </EntityType>

```

```

</EntityType>
<EntityType Name="UserInformationListItem">
  <Key>
    <PropertyRef Name="ID" />
  </Key>
  <Property Name="ID" Type="Edm.Int32" Nullable="false" />
  <Property Name="Name" Type="Edm.String" Nullable="true" m2:EpmAtom="true"
    m2:EpmTargetPath="EpmSyndicationTitle" m2:EpmContentKind="EpmPlaintext"
    m2:EpmKeepContent="true" />
  <Property Name="Modified" Type="Edm.DateTime" Nullable="true" />
  <Property Name="Created" Type="Edm.DateTime" Nullable="true" />
  <NavigationProperty Name="CreatedBy"
    Relationship="Microsoft.SharePoint.DataService.UserInformationListItem_CreatedBy"
    FromRole="UserInformationListItem" ToRole="CreatedBy" />
  <NavigationProperty Name="ModifiedBy"
    Relationship="Microsoft.SharePoint.DataService.UserInformationListItem_ModifiedBy"
    FromRole="UserInformationListItem" ToRole="ModifiedBy" />
  <Property Name="Owshiddenversion" Type="Edm.Int32" Nullable="true"
    ConcurrencyMode="Fixed" />
  <Property Name="Version" Type="Edm.String" Nullable="true" />
  <NavigationProperty Name="Attachments"
    Relationship="Microsoft.SharePoint.DataService.UserInformationListItem_Attachments"
    FromRole="UserInformationListItem" ToRole="Attachments" />
  <Property Name="Path" Type="Edm.String" Nullable="true" />
  <Property Name="Account" Type="Edm.String" Nullable="true" />
  <Property Name="EMail" Type="Edm.String" Nullable="true" />
  <Property Name="MobileNumber" Type="Edm.String" Nullable="true" />
  <Property Name="AboutMe" Type="Edm.String" Nullable="true" />
  <Property Name="SIPAddress" Type="Edm.String" Nullable="true" />
  <Property Name="IsSiteAdmin" Type="Edm.Boolean" Nullable="true" />
  <Property Name="Deleted" Type="Edm.Boolean" Nullable="true" />
  <Property Name="Picture" Type="Edm.String" Nullable="true" />
  <Property Name="Department" Type="Edm.String" Nullable="true" />
  <Property Name="JobTitle" Type="Edm.String" Nullable="true" />
</EntityType>
<Association Name="EmployeesItem_Projects">
  <End Role="Projects" Type="Microsoft.SharePoint.DataService.ProjectsItem"
    Multiplicity="*" />
  <End Role="EmployeesItem" Type="Microsoft.SharePoint.DataService.EmployeesItem"
    Multiplicity="*" />
</Association>
<Association Name="EmployeesItem_CreatedBy">
  <End Role="CreatedBy" Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="EmployeesItem" Type="Microsoft.SharePoint.DataService.EmployeesItem"
    Multiplicity="*" />
</Association>
<Association Name="EmployeesItem_ModifiedBy">
  <End Role="ModifiedBy"
Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="EmployeesItem" Type="Microsoft.SharePoint.DataService.EmployeesItem"
    Multiplicity="*" />
</Association>
<Association Name="EmployeesItem_Attachments">
  <End Role="Attachments" Type="Microsoft.SharePoint.DataService.Attachments"
    Multiplicity="*" />
  <End Role="EmployeesItem" Type="Microsoft.SharePoint.DataService.EmployeesItem"
    Multiplicity="*" />

```

```

</Association>
<Association Name="LocationsItem_CreatedBy">
  <End Role="CreatedBy" Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="LocationsItem" Type="Microsoft.SharePoint.DataService.LocationsItem"
    Multiplicity="*" />
</Association>
<Association Name="LocationsItem_ModifiedBy">
  <End Role="ModifiedBy"
Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="LocationsItem" Type="Microsoft.SharePoint.DataService.LocationsItem"
    Multiplicity="*" />
</Association>
<Association Name="LocationsItem_Attachments">
  <End Role="Attachments" Type="Microsoft.SharePoint.DataService.Attachments"
    Multiplicity="*" />
  <End Role="LocationsItem" Type="Microsoft.SharePoint.DataService.LocationsItem"
    Multiplicity="*" />
</Association>
<Association Name="ProjectsItem_Location">
  <End Role="Location" Type="Microsoft.SharePoint.DataService.LocationsItem"
    Multiplicity="0..1" />
  <End Role="ProjectsItem" Type="Microsoft.SharePoint.DataService.ProjectsItem"
    Multiplicity="*" />
</Association>
<Association Name="ProjectsItem_CreatedBy">
  <End Role="CreatedBy" Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="ProjectsItem" Type="Microsoft.SharePoint.DataService.ProjectsItem"
    Multiplicity="*" />
</Association>
<Association Name="ProjectsItem_ModifiedBy">
  <End Role="ModifiedBy"
Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="ProjectsItem" Type="Microsoft.SharePoint.DataService.ProjectsItem"
    Multiplicity="*" />
</Association>
<Association Name="ProjectsItem_Attachments">
  <End Role="Attachments" Type="Microsoft.SharePoint.DataService.Attachments"
    Multiplicity="*" />
  <End Role="ProjectsItem" Type="Microsoft.SharePoint.DataService.ProjectsItem"
    Multiplicity="*" />
</Association>
<Association Name="UserInformationListItem_CreatedBy">
  <End Role="CreatedBy" Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="UserInformationListItem"
    Type="Microsoft.SharePoint.DataService.UserInformationListItem" Multiplicity="*" />
</Association>
<Association Name="UserInformationListItem_ModifiedBy">
  <End Role="ModifiedBy"
Type="Microsoft.SharePoint.DataService.UserInformationListItem"
    Multiplicity="0..1" />
  <End Role="UserInformationListItem"
    Type="Microsoft.SharePoint.DataService.UserInformationListItem" Multiplicity="*" />
</Association>
<Association Name="UserInformationListItem_Attachments">

```



```

    <End Role="Attachments" Type="Microsoft.SharePoint.DataService.Attachments"
      Multiplicity="*" />
    <End Role="UserInformationListItem"
      Type="Microsoft.SharePoint.DataService.UserInformationListItem" Multiplicity="*" />
  </Association>
<EntityContainer Name="TeamSiteDataContext" m:IsDefaultEntityContainer="true">
  <EntitySet Name="Attachments"
    EntityType="Microsoft.SharePoint.DataService.Attachments" />
  <EntitySet Name="Employees"
    EntityType="Microsoft.SharePoint.DataService.EmployeesItem" />
  <EntitySet Name="Locations"
    EntityType="Microsoft.SharePoint.DataService.LocationsItem" />
  <EntitySet Name="Projects"
    EntityType="Microsoft.SharePoint.DataService.ProjectsItem" />
  <EntitySet Name="UserInformationList"
    EntityType="Microsoft.SharePoint.DataService.UserInformationListItem" />
  <AssociationSet Name="EmployeesItem_Projects"
    Association="Microsoft.SharePoint.DataService.EmployeesItem_Projects">
    <End Role="Projects" EntitySet="Projects" />
    <End Role="EmployeesItem" EntitySet="Employees" />
  </AssociationSet>
  <AssociationSet Name="EmployeesItem_CreatedBy"
    Association="Microsoft.SharePoint.DataService.EmployeesItem_CreatedBy">
    <End Role="CreatedBy" EntitySet="UserInformationList" />
    <End Role="EmployeesItem" EntitySet="Employees" />
  </AssociationSet>
  <AssociationSet Name="EmployeesItem_ModifiedBy"
    Association="Microsoft.SharePoint.DataService.EmployeesItem_ModifiedBy">
    <End Role="ModifiedBy" EntitySet="UserInformationList" />
    <End Role="EmployeesItem" EntitySet="Employees" />
  </AssociationSet>
  <AssociationSet Name="EmployeesItem_Attachments"
    Association="Microsoft.SharePoint.DataService.EmployeesItem_Attachments">
    <End Role="Attachments" EntitySet="Attachments" />
    <End Role="EmployeesItem" EntitySet="Employees" />
  </AssociationSet>
  <AssociationSet Name="LocationsItem_CreatedBy"
    Association="Microsoft.SharePoint.DataService.LocationsItem_CreatedBy">
    <End Role="CreatedBy" EntitySet="UserInformationList" />
    <End Role="LocationsItem" EntitySet="Locations" />
  </AssociationSet>
  <AssociationSet Name="LocationsItem_ModifiedBy"
    Association="Microsoft.SharePoint.DataService.LocationsItem_ModifiedBy">
    <End Role="ModifiedBy" EntitySet="UserInformationList" />
    <End Role="LocationsItem" EntitySet="Locations" />
  </AssociationSet>
  <AssociationSet Name="LocationsItem_Attachments"
    Association="Microsoft.SharePoint.DataService.LocationsItem_Attachments">
    <End Role="Attachments" EntitySet="Attachments" />
    <End Role="LocationsItem" EntitySet="Locations" />
  </AssociationSet>
  <AssociationSet Name="ProjectsItem_Location"
    Association="Microsoft.SharePoint.DataService.ProjectsItem_Location">
    <End Role="Location" EntitySet="Locations" />
    <End Role="ProjectsItem" EntitySet="Projects" />
  </AssociationSet>
  <AssociationSet Name="ProjectsItem_CreatedBy"
    Association="Microsoft.SharePoint.DataService.ProjectsItem_CreatedBy">
    <End Role="CreatedBy" EntitySet="UserInformationList" />

```

```

        <End Role="ProjectsItem" EntitySet="Projects" />
    </AssociationSet>
    <AssociationSet Name="ProjectsItem_ModifiedBy"
        Association="Microsoft.SharePoint.DataService.ProjectsItem_ModifiedBy">
        <End Role="ModifiedBy" EntitySet="UserInformationList" />
        <End Role="ProjectsItem" EntitySet="Projects" />
    </AssociationSet>
    <AssociationSet Name="ProjectsItem_Attachments"
        Association="Microsoft.SharePoint.DataService.ProjectsItem_Attachments">
        <End Role="Attachments" EntitySet="Attachments" />
        <End Role="ProjectsItem" EntitySet="Projects" />
    </AssociationSet>
    <AssociationSet Name="UserInformationListItem_CreatedBy"
        Association="Microsoft.SharePoint.DataService.UserInformationListItem_CreatedBy">
        <End Role="CreatedBy" EntitySet="UserInformationList" />
        <End Role="UserInformationListItem" EntitySet="UserInformationList" />
    </AssociationSet>
    <AssociationSet Name="UserInformationListItem_ModifiedBy"
        Association="Microsoft.SharePoint.DataService.UserInformationListItem_ModifiedBy">
        <End Role="ModifiedBy" EntitySet="UserInformationList" />
        <End Role="UserInformationListItem" EntitySet="UserInformationList" />
    </AssociationSet>
    <AssociationSet Name="UserInformationListItem_Attachments"
        Association="Microsoft.SharePoint.DataService.UserInformationListItem_Attachments">
        <End Role="Attachments" EntitySet="Attachments" />
        <End Role="UserInformationListItem" EntitySet="UserInformationList" />
    </AssociationSet>
</EntityContainer>
</Schema>
</edmx:DataServices>
</edmx:Edmx>

```

## 4.2 Retrieve List Items

### 4.2.1 Retrieve a Collection of List Items

The following example illustrates the exchange of messages required for a client to retrieve all Employee list items from a data service using the AtomPub format.

HTTP Request:

```

GET /_vti_bin/ListData.svc/Employees HTTP/1.1
Accept: application/atom+xml
DataServiceVersion: 1.0
MaxDataServiceVersion: 2.0
Host: www.contoso.com

```

HTTP Response:

```

HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
Server: Microsoft-IIS/7.0
SPRequestGuid: d08f639f-59f9-451d-b09a-f4d073914262
DataServiceVersion: 2.0;

```

X-AspNet-Version: 2.0.50727  
Set-Cookie: SDA\_Callback=05/01/2009 12:36:35; expires=Fri, 01-May-2009 19:46:35 GMT; path=/  
Set-Cookie: WSS\_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/  
X-Powered-By: ASP.NET  
MicrosoftSharePointTeamServices: 14.0.0.4006  
Date: Fri, 01 May 2009 19:36:50 GMT  
Content-Length: ###

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<feed xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <title type="text">Employees</title>
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees</id>
  <updated>2009-05-01T19:36:50Z</updated>
  <link rel="self" title="Employees" href="Employees" />
  <entry m:etag="W/&quot;1&quot;">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(1)</id>
    <title type="text">Margaret Smith</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(1)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
      type="application/atom+xml;type=feed" title="Projects"
      href="Employees(1)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
      type="application/atom+xml;type=entry" title="CreatedBy"
      href="Employees(1)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
      type="application/atom+xml;type=entry" title="ModifiedBy"
      href="Employees(1)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
      scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
      <m:properties>
        <d:FullName>Margaret Smith</d:FullName>
        <d:Salary m:type="Edm.Double">75000</d:Salary>
        <d:HireDate m:type="Edm.DateTime">1984-01-07T00:00:00</d:HireDate>
        <d:ID m:type="Edm.Int32">1</d:ID>
        <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
        <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
        <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Employees</d:Path>
      </m:properties>
    </content>
  </entry>
  <entry m:etag="W/&quot;1&quot;">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(2)</id>
    <title type="text">Sean Jacobson</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(2)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects">
```

```

    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(2)/Projects" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(2)/CreatedBy" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(2)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
    <m:properties>
        <d:FullName>Sean Jacobson</d:FullName>
        <d:Salary m:type="Edm.Double">92000</d:Salary>
        <d:HireDate m:type="Edm.DateTime">1974-06-20T00:00:00</d:HireDate>
        <d:ID m:type="Edm.Int32">2</d:ID>
        <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
        <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
        <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Employees</d:Path>
    </m:properties>
</content>
</entry>
<entry m:etag="W/"1";">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(3)</id>
    <title type="text">Alex Gurthner</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
        <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(3)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
        type="application/atom+xml;type=feed" title="Projects"
        href="Employees(3)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
        type="application/atom+xml;type=entry" title="CreatedBy"
        href="Employees(3)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
        type="application/atom+xml;type=entry" title="ModifiedBy"
        href="Employees(3)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
        scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
        <m:properties>
            <d:FullName>Alex Gurthner</d:FullName>
            <d:Salary m:type="Edm.Double">68000</d:Salary>
            <d:HireDate m:type="Edm.DateTime">1990-10-14T00:00:00</d:HireDate>
            <d:ID m:type="Edm.Int32">3</d:ID>
            <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
            <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
            <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
            <d:Version>1.0</d:Version>
            <d:Path>/Lists/Employees</d:Path>
        </m:properties>
    </content>
</entry>
<entry m:etag="W/"1";">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(4)</id>

```

```

<title type="text">Phyllis Allen</title>
<updated>2009-05-01T19:36:50Z</updated>
<author>
  <name />
</author>
<link rel="edit" title="EmployeesItem" href="Employees(4)" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
  type="application/atom+xml;type=feed" title="Projects"
  href="Employees(4)/Projects" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
  type="application/atom+xml;type=entry" title="CreatedBy"
  href="Employees(4)/CreatedBy" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
  type="application/atom+xml;type=entry" title="ModifiedBy"
  href="Employees(4)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
  scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:FullName>Phyllis Allen</d:FullName>
    <d:Salary m:type="Edm.Double">108000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">1975-03-28T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">4</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(5)</id>
  <title type="text">Carol Beck</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(5)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(5)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(5)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(5)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Carol Beck</d:FullName>
      <d:Salary m:type="Edm.Double">88000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1989-08-11T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">5</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    </m:properties>
  </content>
</entry>

```

```

        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Employees</d:Path>
    </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(6)</id>
    <title type="text">Willie Brooks</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
        <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(6)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
        type="application/atom+xml;type=feed" title="Projects"
        href="Employees(6)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
        type="application/atom+xml;type=entry" title="CreatedBy"
        href="Employees(6)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
        type="application/atom+xml;type=entry" title="ModifiedBy"
        href="Employees(6)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
        scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
        <m:properties>
            <d:FullName>Willie Brooks</d:FullName>
            <d:Salary m:type="Edm.Double">95000</d:Salary>
            <d:HireDate m:type="Edm.DateTime">1983-02-06T00:00:00</d:HireDate>
            <d:ID m:type="Edm.Int32">6</d:ID>
            <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
            <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
            <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
            <d:Version>1.0</d:Version>
            <d:Path>/Lists/Employees</d:Path>
        </m:properties>
    </content>
</entry>
<entry m:etag="W/&quot;1&quot;">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(7)</id>
    <title type="text">Isaiah Morgan</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
        <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(7)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
        type="application/atom+xml;type=feed" title="Projects"
        href="Employees(7)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
        type="application/atom+xml;type=entry" title="CreatedBy"
        href="Employees(7)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
        type="application/atom+xml;type=entry" title="ModifiedBy"
        href="Employees(7)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
        scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
        <m:properties>

```

```

    <d:FullName>Isaiah Morgan</d:FullName>
    <d:Salary m:type="Edm.Double">74000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">2003-12-21T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">7</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(8)</id>
  <title type="text">Leslie Rubio</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(8)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(8)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(8)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(8)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Leslie Rubio</d:FullName>
      <d:Salary m:type="Edm.Double">82000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1976-01-23T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">8</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(9)</id>
  <title type="text">Zachary Martin</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(9)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(9)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(9)/CreatedBy" />

```

```

<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
      type="application/atom+xml;type=entry" title="ModifiedBy"
      href="Employees(9)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
          scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:FullName>Zachary Martin</d:FullName>
    <d:Salary m:type="Edm.Double">112000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">1974-08-15T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">9</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(10)</id>
  <title type="text">Kathleen Gill</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(10)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
        type="application/atom+xml;type=feed" title="Projects"
        href="Employees(10)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
        type="application/atom+xml;type=entry" title="CreatedBy"
        href="Employees(10)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
        type="application/atom+xml;type=entry" title="ModifiedBy"
        href="Employees(10)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
          scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Kathleen Gill</d:FullName>
      <d:Salary m:type="Edm.Double">102000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1989-03-22T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">10</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
</feed>

```

#### 4.2.2 Retrieve the Count of a Collection of List Items

The following example illustrates the exchange of messages required for a client to retrieve the count of all Employee list items from a data service using the AtomPub format.



#### HTTP Request:

```
GET /_vti_bin/ListData.svc/Employees/$count HTTP/1.1
Accept: text/plain
Host: www.contoso.com
```

#### HTTP Response:

```
HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: text/plain; charset=utf-8
ETag: W/"1"
Server: Microsoft-IIS/7.0
SPRequestGuid: 33dfca5a-c05a-415e-a1d3-1a3b9fdf923d
DataServiceVersion: 2.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 12:52:33; expires=Fri, 01-May-2009 20:02:33 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 19:52:33 GMT
Content-Length: ###
```

10

### 4.2.3 Retrieve a Collection of Entities with an Inline Count

The following example illustrates the exchange of messages required for a client to retrieve all Employee list items from a data service and to instruct it to include the count of items retrieved in the response using the AtomPub format.

#### HTTP Request:

```
GET /_vti_bin/ListData.svc/Employees?$inlinecount=allpages HTTP/1.1
Accept: application/atom+xml
Host: www.contoso.com
```

#### HTTP Response:

```
HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
Server: Microsoft-IIS/7.0
SPRequestGuid: d08f639f-59f9-451d-b09a-f4d073914262
DataServiceVersion: 2.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 12:36:35; expires=Fri, 01-May-2009 19:46:35 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 19:36:50 GMT
Content-Length: ###

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
```

```

<feed xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <title type="text">Employees</title>
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees</id>
  <updated>2009-05-01T19:36:50Z</updated>
  <link rel="self" title="Employees" href="Employees" />
  <m2:count xmlns:m2="http://schemas.microsoft.com/ado/2008/11/dataservices/metadata">
    10
  </m2:count>
  <entry m:etag="W/"1"">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(1)</id>
    <title type="text">Margeret Smith</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(1)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
      type="application/atom+xml;type=feed" title="Projects"
      href="Employees(1)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
      type="application/atom+xml;type=entry" title="CreatedBy"
      href="Employees(1)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
      type="application/atom+xml;type=entry" title="ModifiedBy"
      href="Employees(1)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
      scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
      <m:properties>
        <d:FullName>Margeret Smith</d:FullName>
        <d:Salary m:type="Edm.Double">75000</d:Salary>
        <d:HireDate m:type="Edm.DateTime">1984-01-07T00:00:00</d:HireDate>
        <d:ID m:type="Edm.Int32">1</d:ID>
        <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
        <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
        <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Employees</d:Path>
      </m:properties>
    </content>
  </entry>
  <entry m:etag="W/"1"">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(2)</id>
    <title type="text">Sean Jacobson</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(2)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
      type="application/atom+xml;type=feed" title="Projects"
      href="Employees(2)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
      type="application/atom+xml;type=entry" title="CreatedBy"
      href="Employees(2)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"

```

```

    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(2)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
  scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:FullName>Sean Jacobson</d:FullName>
    <d:Salary m:type="Edm.Double">92000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">1974-06-20T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">2</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(3)</id>
  <title type="text">Alex Gurthner</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(3)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(3)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(3)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(3)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Alex Gurthner</d:FullName>
      <d:Salary m:type="Edm.Double">68000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1990-10-14T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">3</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
<entry m:etag="W/&quot;1&quot;;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(4)</id>
  <title type="text">Phyllis Allen</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(4)" />

```

```

<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
  type="application/atom+xml;type=feed" title="Projects"
  href="Employees(4)/Projects" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
  type="application/atom+xml;type=entry" title="CreatedBy"
  href="Employees(4)/CreatedBy" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
  type="application/atom+xml;type=entry" title="ModifiedBy"
  href="Employees(4)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
  scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:FullName>Phyllis Allen</d:FullName>
    <d:Salary m:type="Edm.Double">108000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">1975-03-28T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">4</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>
<entry m:etag="W/"1"">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(5)</id>
  <title type="text">Carol Beck</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(5)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(5)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(5)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(5)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Carol Beck</d:FullName>
      <d:Salary m:type="Edm.Double">88000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1989-08-11T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">5</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
<entry m:etag="W/"1"">

```

```

<id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(6)</id>
<title type="text">Willie Brooks</title>
<updated>2009-05-01T19:36:50Z</updated>
<author>
  <name />
</author>
<link rel="edit" title="EmployeesItem" href="Employees(6)" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
  type="application/atom+xml;type=feed" title="Projects"
  href="Employees(6)/Projects" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
  type="application/atom+xml;type=entry" title="CreatedBy"
  href="Employees(6)/CreatedBy" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
  type="application/atom+xml;type=entry" title="ModifiedBy"
  href="Employees(6)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
  scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:FullName>Willie Brooks</d:FullName>
    <d:Salary m:type="Edm.Double">95000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">1983-02-06T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">6</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(7)</id>
  <title type="text">Isaiah Morgan</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(7)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(7)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(7)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(7)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Isaiah Morgan</d:FullName>
      <d:Salary m:type="Edm.Double">74000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">2003-12-21T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">7</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    </m:properties>
  </content>
</entry>

```

```

        <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Employees</d:Path>
    </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;";>
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(8)</id>
    <title type="text">Leslie Rubio</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
        <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(8)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
        type="application/atom+xml;type=feed" title="Projects"
        href="Employees(8)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
        type="application/atom+xml;type=entry" title="CreatedBy"
        href="Employees(8)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
        type="application/atom+xml;type=entry" title="ModifiedBy"
        href="Employees(8)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
        scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
        <m:properties>
            <d:FullName>Leslie Rubio</d:FullName>
            <d:Salary m:type="Edm.Double">82000</d:Salary>
            <d:HireDate m:type="Edm.DateTime">1976-01-23T00:00:00</d:HireDate>
            <d:ID m:type="Edm.Int32">8</d:ID>
            <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
            <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
            <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
            <d:Version>1.0</d:Version>
            <d:Path>/Lists/Employees</d:Path>
        </m:properties>
    </content>
</entry>
<entry m:etag="W/&quot;1&quot;";>
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(9)</id>
    <title type="text">Zachary Martin</title>
    <updated>2009-05-01T19:36:50Z</updated>
    <author>
        <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(9)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
        type="application/atom+xml;type=feed" title="Projects"
        href="Employees(9)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
        type="application/atom+xml;type=entry" title="CreatedBy"
        href="Employees(9)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
        type="application/atom+xml;type=entry" title="ModifiedBy"
        href="Employees(9)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
        scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">

```

```

    <m:properties>
      <d:FullName>Zachary Martin</d:FullName>
      <d:Salary m:type="Edm.Double">112000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1974-08-15T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">9</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(10)</id>
  <title type="text">Kathleen Gill</title>
  <updated>2009-05-01T19:36:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(10)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(10)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(10)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(10)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Kathleen Gill</d:FullName>
      <d:Salary m:type="Edm.Double">102000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1989-03-22T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">10</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
</feed>

```

#### 4.2.4 Retrieve the First Two List Items in a List

The following example illustrates the exchange of messages required for a client to retrieve the first two Employee list items from a data service using the AtomPub format.

HTTP Request:

```

GET /_vti_bin/ListData.svc/Employees?$top=2 HTTP/1.1
Accept: application/atom+xml

```

Host: www.contoso.com

## HTTP Response:

```
HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
Server: Microsoft-IIS/7.0
SPRequestGuid: 8c346d66-81f6-412d-a825-d6fa1e227001
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 13:06:46; expires=Fri, 01-May-2009 20:16:46 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 20:06:46 GMT
Content-Length: ###
```

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<feed xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <title type="text">Employees</title>
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees</id>
  <updated>2009-05-01T20:06:46Z</updated>
  <link rel="self" title="Employees" href="Employees" />
  <entry m:etag="W/&quot;1&quot;">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(1)</id>
    <title type="text">Margeret Smith</title>
    <updated>2009-05-01T20:06:46Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(1)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
      type="application/atom+xml;type=feed" title="Projects"
      href="Employees(1)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
      type="application/atom+xml;type=entry" title="CreatedBy"
      href="Employees(1)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
      type="application/atom+xml;type=entry" title="ModifiedBy"
      href="Employees(1)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
      scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
      <m:properties>
        <d:FullName>Margeret Smith</d:FullName>
        <d:Salary m:type="Edm.Double">75000</d:Salary>
        <d:HireDate m:type="Edm.DateTime">1984-01-07T00:00:00</d:HireDate>
        <d:ID m:type="Edm.Int32">1</d:ID>
        <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
        <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
        <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Employees</d:Path>
      </m:properties>
    </content>
  </entry>
</feed>
```



```

    </content>
</entry>
<entry m:etag="W/&quot;1&quot;;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(2)</id>
  <title type="text">Sean Jacobson</title>
  <updated>2009-05-01T20:06:46Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(2)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(2)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(2)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(2)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Sean Jacobson</d:FullName>
      <d:Salary m:type="Edm.Double">92000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1974-06-20T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">2</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
</feed>

```

#### 4.2.5 Retrieve the Last Two List Items in a List

The following example illustrates the exchange of messages required for a client to retrieve the last two Employee list items from a data service using the AtomPub format.

##### HTTP Request:

```

GET /_vti_bin/ListData.svc/Employees?$skip=8 HTTP/1.1
Accept: application/atom+xml
Host: www.contoso.com

```

##### HTTP Response:

```

HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
Server: Microsoft-IIS/7.0
SPRequestGuid: f34dbe9d-c55d-4603-b935-bc089293a4f2
DataServiceVersion: 2.0;

```

X-AspNet-Version: 2.0.50727  
Set-Cookie: SDA\_Callback=05/01/2009 13:10:36; expires=Fri, 01-May-2009 20:20:36 GMT; path=/  
Set-Cookie: WSS\_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/  
X-Powered-By: ASP.NET  
MicrosoftSharePointTeamServices: 14.0.0.4006  
Date: Fri, 01 May 2009 20:10:36 GMT  
Content-Length: ###

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<feed xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <title type="text">Employees</title>
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees</id>
  <updated>2009-05-01T20:10:37Z</updated>
  <link rel="self" title="Employees" href="Employees" />
  <entry m:etag="W/"1"">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(9)</id>
    <title type="text">Zachary Martin</title>
    <updated>2009-05-01T20:10:37Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(9)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
      type="application/atom+xml;type=feed" title="Projects"
      href="Employees(9)/Projects" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
      type="application/atom+xml;type=entry" title="CreatedBy"
      href="Employees(9)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
      type="application/atom+xml;type=entry" title="ModifiedBy"
      href="Employees(9)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.EmployeesItem"
      scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
      <m:properties>
        <d:FullName>Zachary Martin</d:FullName>
        <d:Salary m:type="Edm.Double">112000</d:Salary>
        <d:HireDate m:type="Edm.DateTime">1974-08-15T00:00:00</d:HireDate>
        <d:ID m:type="Edm.Int32">9</d:ID>
        <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
        <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
        <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Employees</d:Path>
      </m:properties>
    </content>
  </entry>
  <entry m:etag="W/"1"">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(10)</id>
    <title type="text">Kathleen Gill</title>
    <updated>2009-05-01T20:10:37Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="EmployeesItem" href="Employees(10)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
```

```

    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(10)/Projects" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(10)/CreatedBy" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(10)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:FullName>Kathleen Gill</d:FullName>
    <d:Salary m:type="Edm.Double">102000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">1989-03-22T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">10</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>
</feed>

```

#### 4.2.6 Retrieve the Middle Two List Items in a List

The following example illustrates the exchange of messages required for a client to retrieve the middle two Employee list items from a data service using the AtomPub format.

##### HTTP Request:

```

GET /_vti_bin/ListData.svc/Employees?$skip=4&$top=2 HTTP/1.1
Accept: application/atom+xml
Host: www.contoso.com

```

##### HTTP Response:

```

HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
Server: Microsoft-IIS/7.0
SPRequestGuid: 03ddcf69-cb4e-4e13-bb09-053a81719ffc
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 13:16:17; expires=Fri, 01-May-2009 20:26:17 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 20:16:18 GMT
Content-Length: ###

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<feed xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
    xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"

```

```

xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
xmlns="http://www.w3.org/2005/Atom">
<title type="text">Employees</title>
<id>http://www.contoso.com/_vti_bin/ListData.svc/Employees</id>
<updated>2009-05-01T20:16:17Z</updated>
<link rel="self" title="Employees" href="Employees" />
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(5)</id>
  <title type="text">Carol Beck</title>
  <updated>2009-05-01T20:16:17Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(5)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(5)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(5)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(5)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Carol Beck</d:FullName>
      <d:Salary m:type="Edm.Double">88000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1989-08-11T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">5</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(6)</id>
  <title type="text">Willie Brooks</title>
  <updated>2009-05-01T20:16:17Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(6)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(6)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(6)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(6)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">

```

```

    <m:properties>
      <d:FullName>Willie Brooks</d:FullName>
      <d:Salary m:type="Edm.Double">95000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1983-02-06T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">6</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
</feed>

```

## 4.2.7 Retrieve a List Item by ID

The following example illustrates the exchange of messages required for a client to retrieve an Employee list item with an ID value of "3" from a data service using the AtomPub format.

### HTTP Request:

```

GET /_vti_bin/ListData.svc/Employees(3) HTTP/1.1
Accept: application/atom+xml
Host: www.contoso.com

```

### HTTP Response:

```

HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
ETag: W/"1"
Server: Microsoft-IIS/7.0
SPRequestGuid: 28608b24-0e18-4bf7-a30a-58c0e3ce7dfe
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 13:18:39; expires=Fri, 01-May-2009 20:28:39 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 20:18:39 GMT
Content-Length: ###

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<entry base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  m:etag="W/"1"'" xmlns="http://www.w3.org/2005/Atom">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(3)</id>
  <title type="text">Alex Gurthner</title>
  <updated>2009-05-01T20:18:40Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(3)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"

```

```

    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(3)/Projects" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(3)/CreatedBy" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(3)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:FullName>Alex Gurthner</d:FullName>
    <d:Salary m:type="Edm.Double">68000</d:Salary>
    <d:HireDate m:type="Edm.DateTime">1990-10-14T00:00:00</d:HireDate>
    <d:ID m:type="Edm.Int32">3</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T12:21:21</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T12:21:21</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Employees</d:Path>
  </m:properties>
</content>
</entry>

```

#### 4.2.8 Retrieve List Items That Satisfy Specified Criteria

The following example illustrates the exchange of messages required for a client to retrieve a collection of Employee list items whose **Salary** field value is greater than \$100,000 from a data service using the AtomPub format.

HTTP Request:

```

GET /_vti_bin/ListData.svc/Employees?$filter=Salary%20gt%20100000 HTTP/1.1
Accept: application/atom+xml
Host: www.contoso.com

```

HTTP Response:

```

HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
Server: Microsoft-IIS/7.0
SPRequestGuid: 6467cb6e-1043-4bc4-a971-f10bc94a5a48
DataServiceVersion: 2.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 13:44:31; expires=Fri, 01-May-2009 20:54:31 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 20:44:31 GMT
Content-Length: ###

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<feed xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
    xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"

```

```

xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
xmlns="http://www.w3.org/2005/Atom">
<title type="text">Employees</title>
<id>http://www.contoso.com/_vti_bin/ListData.svc/Employees</id>
<updated>2009-05-01T20:44:32Z</updated>
<link rel="self" title="Employees" href="Employees" />
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(4)</id>
  <title type="text">Phyllis Allen</title>
  <updated>2009-05-01T20:44:32Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(4)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(4)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(4)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(4)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Phyllis Allen</d:FullName>
      <d:Salary m:type="Edm.Double">108000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1975-03-28T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">4</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T13:40:08</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(9)</id>
  <title type="text">Zachary Martin</title>
  <updated>2009-05-01T20:44:32Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(9)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(9)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(9)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(9)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">

```

```

    <m:properties>
      <d:FullName>Zachary Martin</d:FullName>
      <d:Salary m:type="Edm.Double">112000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1974-08-15T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">9</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T13:40:08</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(10)</id>
  <title type="text">Kathleen Gill</title>
  <updated>2009-05-01T20:44:32Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(10)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(10)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(10)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(10)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Kathleen Gill</d:FullName>
      <d:Salary m:type="Edm.Double">102000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1989-03-22T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">10</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T13:40:08</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
</feed>

```

#### 4.2.9 Retrieve List Items in a Specified Order

The following example illustrates the exchange of messages required for a client to retrieve all Projects list items ordered by the value of their **Completion Date** field from a data service using the AtomPub format.

HTTP Request:

```
GET /_vti_bin/ListData.svc/Projects?$orderby=CompletionDate HTTP/1.1
```



Accept: application/atom+xml  
Host: www.contoso.com

## HTTP Response:

HTTP/1.1 200 OK  
Cache-Control: no-cache  
Content-Type: application/atom+xml; charset=utf-8  
Server: Microsoft-IIS/7.0  
SPRequestGuid: 41cdd8a4-b41f-4b79-8ac5-52dcce4db4e6  
DataServiceVersion: 2.0;  
X-AspNet-Version: 2.0.50727  
Set-Cookie: SDA\_Callback=05/01/2009 13:48:49; expires=Fri, 01-May-2009 20:58:49 GMT; path=/  
Set-Cookie: WSS\_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/  
X-Powered-By: ASP.NET  
MicrosoftSharePointTeamServices: 14.0.0.4006  
Date: Fri, 01 May 2009 20:48:49 GMT  
Content-Length: ###

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<feed xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <title type="text">Projects</title>
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Projects</id>
  <updated>2009-05-01T20:48:50Z</updated>
  <link rel="self" title="Projects" href="Projects" />
  <entry m:etag="W/"1"">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Projects(1)</id>
    <title type="text">Water/Sewer #812061</title>
    <updated>2009-05-01T20:48:50Z</updated>
    <author>
      <name />
    </author>
    <link rel="edit" title="ProjectsItem" href="Projects(1)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Location"
      type="application/atom+xml;type=entry" title="Location"
      href="Projects(1)/Location" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
      type="application/atom+xml;type=entry" title="CreatedBy"
      href="Projects(1)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
      type="application/atom+xml;type=entry" title="ModifiedBy"
      href="Projects(1)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.ProjectsItem"
      scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
      <m:properties>
        <d:ProjectTitle>Water/Sewer #812061</d:ProjectTitle>
        <d:Description>Sewer improvements in San Juan Capistrano. Plans call for
          improving the existing condition of a hydraulically deficient line through the
          construction of a parallel 27 inch PVC sewer.</d:Description>
        <d:CompletionDate m:type="Edm.DateTime">2009-05-11T00:00:00</d:CompletionDate>
        <d:OnTrack m:type="Edm.Boolean">true</d:OnTrack>
        <d:ID m:type="Edm.Int32">1</d:ID>
        <d:Modified m:type="Edm.DateTime">2009-05-01T13:40:08</d:Modified>
        <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
      </m:properties>
    </content>
  </entry>
</feed>
```

```

        <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
        <d:Version>1.0</d:Version>
        <d:Path>/Lists/Projects</d:Path>
    </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Projects(4)</id>
    <title type="text">Theatre/Auditoriums #429743</title>
    <updated>2009-05-01T20:48:50Z</updated>
    <author>
        <name />
    </author>
    <link rel="edit" title="ProjectsItem" href="Projects(4)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Location"
        type="application/atom+xml;type=entry" title="Location"
        href="Projects(4)/Location" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
        type="application/atom+xml;type=entry" title="CreatedBy"
        href="Projects(4)/CreatedBy" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
        type="application/atom+xml;type=entry" title="ModifiedBy"
        href="Projects(4)/ModifiedBy" />
    <category term="Microsoft.SharePoint.DataService.ProjectsItem"
        scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
    <content type="application/xml">
        <m:properties>
            <d:ProjectTitle>Theatre/Auditoriums #429743</d:ProjectTitle>
            <d:Description>The work involves furnishing all labor, materials,
                equipment, services, and construction. The project consists of a general
                interior build-out of the fourth floor space within the existing Balboa Theatre
                and some minor additional miscellaneous work on floors 1, 2, 5 and basement.
                This contract includes general mechanical, plumbing, and electrical trades to
                complete the build-out as described by the construction documents; all other
                work and appurtenances in accordance with the plans and
                specifications.</d:Description>
            <d:CompletionDate m:type="Edm.DateTime">2010-06-15T00:00:00</d:CompletionDate>
            <d:OnTrack m:type="Edm.Boolean">true</d:OnTrack>
            <d:ID m:type="Edm.Int32">4</d:ID>
            <d:Modified m:type="Edm.DateTime">2009-05-01T13:40:08</d:Modified>
            <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
            <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
            <d:Version>1.0</d:Version>
            <d:Path>/Lists/Projects</d:Path>
        </m:properties>
    </content>
</entry>
<entry m:etag="W/&quot;1&quot;">
    <id>http://www.contoso.com/_vti_bin/ListData.svc/Projects(3)</id>
    <title type="text">Educational #623991</title>
    <updated>2009-05-01T20:48:50Z</updated>
    <author>
        <name />
    </author>
    <link rel="edit" title="ProjectsItem" href="Projects(3)" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Location"
        type="application/atom+xml;type=entry" title="Location"
        href="Projects(3)/Location" />
    <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"

```

```

    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Projects(3)/CreatedBy" />
<link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Projects(3)/ModifiedBy" />
<category term="Microsoft.SharePoint.DataService.ProjectsItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
<content type="application/xml">
  <m:properties>
    <d:ProjectTitle>Educational #623991</d:ProjectTitle>
    <d:Description>Tenant improvements to an existing educational facility in
      Carlsbad. Completed plans are calling for electrical, mechanical and structural
      upgrades to an elementary school. The project will also include interior
      remodeling and optimizing existing space.</d:Description>
    <d:CompletionDate m:type="Edm.DateTime">2010-08-21T00:00:00</d:CompletionDate>
    <d:OnTrack m:type="Edm.Boolean">>false</d:OnTrack>
    <d:ID m:type="Edm.Int32">3</d:ID>
    <d:Modified m:type="Edm.DateTime">2009-05-01T13:40:08</d:Modified>
    <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
    <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
    <d:Version>1.0</d:Version>
    <d:Path>/Lists/Projects</d:Path>
  </m:properties>
</content>
</entry>
<entry m:etag="W/&quot;1&quot;">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Projects(2)</id>
  <title type="text">Roads/Highway #812523</title>
  <updated>2009-05-01T20:48:50Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="ProjectsItem" href="Projects(2)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Location"
    type="application/atom+xml;type=entry" title="Location"
    href="Projects(2)/Location" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Projects(2)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Projects(2)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.ProjectsItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:ProjectTitle>Roads/Highway #812523</d:ProjectTitle>
      <d:Description>Construct an additional through lane on the north side of Palomar
        Airport Road between Paseo Del Norte and Armada Drive and construct a
        deceleration lane, including install new curb & gutter, sidewalk,
        landscaping, reclaimed water irrigation system, Caltrans truss sign structure,
        and relocate existing utilities.</d:Description>
      <d:CompletionDate m:type="Edm.DateTime">2012-12-01T00:00:00</d:CompletionDate>
      <d:OnTrack m:type="Edm.Boolean">true</d:OnTrack>
      <d:ID m:type="Edm.Int32">2</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T13:40:08</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
    </m:properties>
  </content>
</entry>

```

```

        <d:Path>/Lists/Projects</d:Path>
      </m:properties>
    </content>
  </entry>
</feed>

```

### 4.3 Insert a New List Item

The following example illustrates the exchange of messages required for a client to insert a new Employees list item to the Employees list and associate it with Projects list item 2 and 3 using the AtomPub format.

HTTP Request:

```

POST /_vti_bin/ListData.svc/Employees HTTP/1.1
Accept: application/atom+xml
Content-Type: application/atom+xml
Host: www.contoso.com
Content-Length: ###
Expect: 100-continue

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<entry xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <category scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme"
    term="Microsoft.SharePoint.DataService.EmployeesItem" />
  <title />
  <author>
    <name />
  </author>
  <updated>2009-04-30T02:15:21.1353156Z</updated>
  <id />
  <link href="http://www.contoso.com/_vti_bin/ListData.svc/Projects(2)"
    rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" />
  <link href="http://www.contoso.com/_vti_bin/ListData.svc/Projects(3)"
    rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" />
  <content type="application/xml">
    <m:properties>
      <d:Created m:type="Edm.DateTime" m:null="true" />
      <d:FullName>James Earl Jones</d:FullName>
      <d:HireDate m:type="Edm.DateTime">1987-04-29T19:15:14.7861156-07:00</d:HireDate>
      <d:ID m:type="Edm.Int32">0</d:ID>
      <d:Modified m:type="Edm.DateTime" m:null="true" />
      <d:Path m:null="true" />
      <d:Salary m:type="Edm.Double">195000</d:Salary>
      <d:Version m:null="true" />
      <d:Owshiddenversion m:type="Edm.Int32" m:null="true" />
    </m:properties>
  </content>
</entry>

```

HTTP Response:

HTTP/1.1 201 Created  
Cache-Control: no-cache  
Content-Type: application/atom+xml; charset=utf-8  
ETag: W/"1"  
Location: http://www.contoso.com/\_vti\_bin/ListData.svc/Employees(11)  
Server: Microsoft-IIS/7.0  
SPRequestGuid: 49759c6a-7a76-44fc-bd4c-e6bfe3f97a3e  
DataServiceVersion: 2.0;  
X-AspNet-Version: 2.0.50727  
Set-Cookie: SDA\_Callback=05/01/2009 14:07:39; expires=Fri, 01-May-2009 21:17:39 GMT; path=/  
Set-Cookie: WSS\_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/  
X-Powered-By: ASP.NET  
MicrosoftSharePointTeamServices: 14.0.0.4006  
Date: Fri, 01 May 2009 21:07:41 GMT  
Content-Length: ###

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<entry xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  m:etag="W/"1""
  xmlns="http://www.w3.org/2005/Atom">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(11)</id>
  <title type="text">James Earl Jones</title>
  <updated>2009-05-01T21:07:41Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(11)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(11)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(11)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(11)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>James Earl Jones</d:FullName>
      <d:Salary m:type="Edm.Double">195000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1987-04-29T19:15:14.7861156-07:00</d:HireDate>
      <d:ID m:type="Edm.Int32">11</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T14:07:41</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T14:07:41</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">1</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
```

## 4.4 Update a List Item

### 4.4.1 Update a List Item Using Replace-based Semantics

The following example illustrates the exchange of messages required for a client to update an existing Employee list item with replace semantics using the AtomPub format.

HTTP Request:

```
PUT /_vti_bin/ListData.svc/Employees(8) HTTP/1.1
If-Match: W/"1"
Accept: application/atom+xml
Content-Type: application/atom+xml
Host: www.contoso.com
Content-Length: ###
Expect: 100-continue

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<entry xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <content type="application/xml">
    <m:properties>
      <d:FullName>Leslie Rubio (modified)</d:FullName>
    </m:properties>
  </content>
</entry>
```

HTTP Response:

```
HTTP/1.1 204 No Content
Cache-Control: no-cache
ETag: W/"2"
Server: Microsoft-IIS/7.0
SPRequestGuid: 45daab9b-031e-48c7-bed9-60d96516614e
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 14:32:41; expires=Fri, 01-May-2009 21:42:41 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 21:32:42 GMT
```

The following retrieve request is not required to update the list item but is included to show the value of the Employee list item after the update finished. Because replace-based semantics were used, non-system properties that were not specified in the update request have been set to their default values (nulls, in this case). Certain properties that are designated as read-only by the protocol server (for example, **Modified**, **Created**, **Version**, **ID**, and so on) are not affected by updates, regardless of whether a user modifies them, and will always retain their values as found on the protocol server.

HTTP Request:

```
GET /_vti_bin/ListData.svc/Employees(8) HTTP/1.1
Accept: application/atom+xml
```

Host: www.contoso.com

## HTTP Response:

```
HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/atom+xml; charset=utf-8
ETag: W/"2"
Server: Microsoft-IIS/7.0
SPRequestGuid: f3f18a87-af3a-41c8-922b-206fb16b8f5f
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 14:33:12; expires=Fri, 01-May-2009 21:43:12 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 21:33:13 GMT
Content-Length: 1839
```

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<entry xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  m:etag="W/"2""
  xmlns="http://www.w3.org/2005/Atom">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(8)</id>
  <title type="text">Leslie Rubio (modified)</title>
  <updated>2009-05-01T21:33:13Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(8)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml; type=feed" title="Projects"
    href="Employees(8)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml; type=entry" title="CreatedBy"
    href="Employees(8)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml; type=entry" title="ModifiedBy"
    href="Employees(8)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Leslie Rubio (modified)</d:FullName>
      <d:Salary m:type="Edm.Double" m:null="true" />
      <d:HireDate m:type="Edm.DateTime" m:null="true" />
      <d:ID m:type="Edm.Int32">8</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T14:32:43</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">2</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>
```

## 4.4.2 Update a List Item Using Merge-based Semantics

The following example illustrates the exchange of messages required for a client to update an existing Employee list item with merge semantics using the AtomPub format.

### HTTP Request:

```
MERGE /_vti_bin/ListData.svc/Employees(10) HTTP/1.1
If-Match: W/"1"
Accept: application/atom+xml
Content-Type: application/atom+xml
Host: www.contoso.com
Content-Length: ###
Expect: 100-continue

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<entry xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <content type="application/xml">
    <m:properties>
      <d:FullName>Kathleen Gill (modified)</d:FullName>
    </m:properties>
  </content>
</entry>
```

### HTTP Response:

```
HTTP/1.1 204 No Content
Cache-Control: no-cache
ETag: W/"2"
Server: Microsoft-IIS/7.0
SPRequestGuid: e1a0ead5-8b76-42ed-816c-95184e007013
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 14:25:12; expires=Fri, 01-May-2009 21:35:12 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 21:25:13 GMT
```

The following retrieve request is not required to update the list item but is included to show the value of the Employee list item after the update finished. Because merge-based semantics were used, properties that were not specified in the update request have not been altered.

### HTTP Request:

```
GET /_vti_bin/ListData.svc/Employees(10) HTTP/1.1
Accept: application/atom+xml
Host: www.contoso.com
```

### HTTP Response:

```
HTTP/1.1 200 OK
Cache-Control: no-cache
```



```

Content-Type: application/atom+xml;charset=utf-8
ETag: W/"2"
Server: Microsoft-IIS/7.0
SPRequestGuid: a0a014f1-28db-4381-ac5d-1e7f4f71d6b8
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 14:26:14; expires=Fri, 01-May-2009 21:36:14 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 21:26:14 GMT
Content-Length: ###

```

```

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<entry xml:base="http://www.contoso.com/_vti_bin/ListData.svc/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  m:etag="W/"&quot;2&quot;"
  xmlns="http://www.w3.org/2005/Atom">
  <id>http://www.contoso.com/_vti_bin/ListData.svc/Employees(10)</id>
  <title type="text">Kathleen Gill (modified)</title>
  <updated>2009-05-01T21:26:14Z</updated>
  <author>
    <name />
  </author>
  <link rel="edit" title="EmployeesItem" href="Employees(10)" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/Projects"
    type="application/atom+xml;type=feed" title="Projects"
    href="Employees(10)/Projects" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/CreatedBy"
    type="application/atom+xml;type=entry" title="CreatedBy"
    href="Employees(10)/CreatedBy" />
  <link rel="http://schemas.microsoft.com/ado/2007/08/dataservices/related/ModifiedBy"
    type="application/atom+xml;type=entry" title="ModifiedBy"
    href="Employees(10)/ModifiedBy" />
  <category term="Microsoft.SharePoint.DataService.EmployeesItem"
    scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <content type="application/xml">
    <m:properties>
      <d:FullName>Kathleen Gill (modified)</d:FullName>
      <d:Salary m:type="Edm.Double">102000</d:Salary>
      <d:HireDate m:type="Edm.DateTime">1989-03-22T00:00:00</d:HireDate>
      <d:ID m:type="Edm.Int32">10</d:ID>
      <d:Modified m:type="Edm.DateTime">2009-05-01T14:25:14</d:Modified>
      <d:Created m:type="Edm.DateTime">2009-05-01T13:40:08</d:Created>
      <d:Owshiddenversion m:type="Edm.Int32">2</d:Owshiddenversion>
      <d:Version>1.0</d:Version>
      <d:Path>/Lists/Employees</d:Path>
    </m:properties>
  </content>
</entry>

```

## 4.5 Delete a List Item

The following example illustrates the exchange of messages required for a client to delete an existing Employee list item with **ID** value of "1" from a data service using the AtomPub format.

HTTP Request:

```
DELETE /_vti_bin/ListData.svc/Employees(1) HTTP/1.1
If-Match: W/"1"
Accept: application/atom+xml
Host: www.contoso.com
```

#### HTTP Response:

```
HTTP/1.1 204 No Content
Cache-Control: no-cache
Server: Microsoft-IIS/7.0
SPRequestGuid: 7477c1ef-2e93-4c80-9de1-86d1e4095696
DataServiceVersion: 1.0;
X-AspNet-Version: 2.0.50727
Set-Cookie: SDA_Callback=05/01/2009 14:38:41; expires=Fri, 01-May-2009 21:48:41 GMT; path=/
Set-Cookie: WSS_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 14.0.0.4006
Date: Fri, 01 May 2009 21:38:42 GMT
```

## 4.6 Batch Requests

The following example illustrates the exchange of messages required for a client to insert a new Employee list item followed by an update of **Project** list item 1. Request bodies have been replaced with descriptions enclosed by brackets for clarity.

#### HTTP Request:

```
POST /_vti_bin/ListData.svc/$batch HTTP/1.1
Accept: application/atom+xml,application/xml
Content-Type: multipart/mixed; boundary=batch_2634d583-80b6-4272-904b-f241d72722e4
Host: www.contoso.com
Content-Length: ###
Expect: 100-continue

--batch_2634d583-80b6-4272-904b-f241d72722e4
Content-Type: multipart/mixed; boundary=changeset_20f18de9-b0ba-4c7d-87dd-07ce4836cc5a

--changeset_20f18de9-b0ba-4c7d-87dd-07ce4836cc5a
Content-Type: application/http
Content-Transfer-Encoding: binary

POST /_vti_bin/ListData.svc/Employees HTTP/1.1
Host: www.contoso.com
Content-ID: 1
Content-Type: application/atom+xml;type=entry
Content-Length: ###

<AtomPub representation of a new Employee list item>

--changeset_20f18de9-b0ba-4c7d-87dd-07ce4836cc5a
Content-Type: application/http
Content-Transfer-Encoding: binary

MERGE /_vti_bin/ListData.svc/Projects(1) HTTP/1.1
Host: www.contoso.com
Content-ID: 3
```

Content-Type: application/atom+xml;type=entry  
If-Match: W/"2"  
Content-Length: ###  
  
<AtomPub representation of Project list item 1>  
  
--changeset\_20f18de9-b0ba-4c7d-87dd-07ce4836cc5a--  
--batch\_2634d583-80b6-4272-904b-f241d72722e4--

## HTTP Response:

HTTP/1.1 202 Accepted  
Cache-Control: no-cache  
Content-Type: multipart/mixed; boundary=batchresponse\_c111d175-b384-44e2-a3af-bf24994b7cb7  
Server: Microsoft-IIS/7.0  
SPRequestGuid: 240dffffd-bf75-40a4-a804-20924faa2e8d  
X-AspNet-Version: 2.0.50727  
Set-Cookie: SDA\_Callback=04/30/2009 16:33:03; expires=Thu, 30-Apr-2009 23:43:03 GMT; path=/  
Set-Cookie: WSS\_KeepSessionAuthenticated={afbe7ca4-c701-4f7d-9021-25cab947ae3f}; path=/  
X-Powered-By: ASP.NET  
MicrosoftSharePointTeamServices: 14.0.0.4006  
Date: Thu, 30 Apr 2009 23:33:04 GMT  
Content-Length: ###  
  
--batchresponse\_c111d175-b384-44e2-a3af-bf24994b7cb7  
Content-Type: multipart/mixed; boundary=changesetresponse\_1be3f588-2f05-4166-a76d-7be8935bcbf5  
  
--changesetresponse\_1be3f588-2f05-4166-a76d-7be8935bcbf5  
Content-Type: application/http  
Content-Transfer-Encoding: binary  
  
HTTP/1.1 201 Created  
Content-ID: 1  
Cache-Control: no-cache  
DataServiceVersion: 2.0;  
Content-Type: application/atom+xml; charset=utf-8  
Location: http://www.contoso.com/\_vti\_bin/ListData.svc/Employees(11)  
ETag: W/"1"  
  
<AtomPub representation of the newly created Employee list item>  
  
--changesetresponse\_1be3f588-2f05-4166-a76d-7be8935bcbf5  
Content-Type: application/http  
Content-Transfer-Encoding: binary  
  
HTTP/1.1 204 No Content  
Content-ID: 3  
Cache-Control: no-cache  
DataServiceVersion: 1.0;  
ETag: W/"2"  
  
--changesetresponse\_1be3f588-2f05-4166-a76d-7be8935bcbf5--  
--batchresponse\_c111d175-b384-44e2-a3af-bf24994b7cb7--

## **5 Security**

### **5.1 Security Considerations for Implementers**

None.

### **5.2 Index of Security Parameters**

None.

## 6 Appendix A: Sample Site Data

All examples in this document use the following sample site data and conceptual schema definition language (CSDL).

### Sample Data:

- A site at <http://www.contoso.com> exists.
- A custom list with title Employees exist on the site. The Employees list contains the following fields:
  - Name
  - Salary
  - Hire Date
  - Projects
- A total of 10 list items exist in the Employees list.
- Employees list items with ID values 1, 8, and 10 exist.
- A custom list with title Projects exist on the site. The Projects list contains the following fields:
  - Title
  - Due Date
  - On Track
  - Location
- Two Projects list items, one with ID value 2 and the other with ID value 3, exist. Projects list item 2 and 3 are associated with Employees list item 1.

## 7 Appendix B: Product Behavior

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

- Microsoft® Office 2010 suites
- Microsoft® SharePoint® Foundation 2010

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.

## 8 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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