SOA-EERP Business Rating of Service
Version 1.0
Committee Draft 04
12 September 2010

Specification URIs:
This Version:
http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-bRating-Spec-cd04.html
http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-bRating-Spec-cd04.doc
http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-bRating-Spec-cd04.pdf (Authoritative format)
Previous Version:
http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-Rating-Spec-cd03.html
http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-Rating-Spec-cd03.doc
http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-Rating-Spec-cd03.pdf
Latest Version:
http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-bRating-Specification.doc

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Related work:
This specification is related to:


This document is one of three closely related specifications, SOA-EERP Business Quality of Service (bQoS), SOA-EERP Business Rating (bRating) and SOA-EERP Business Service Level Agreement (bSLA) which need to be understood in combination.

Declared XML Namespace(s):
http://docs.oasis-open.org/ns/soa-eerp/rt/200903
Abstract:
This document specifies the XML vocabulary for business rating, one of three Specifications for end-to-end resource planning (EERP). Business rating describes the business-related rating and credentials for a service.

Status:
This document was last revised or approved by the SOA-EERP TC on the above date. The level of approval is also listed above. Check the “Latest Version” or “Latest Approved Version” location noted above for possible later revisions of this document.

Technical Committee members should send comments on this specification to the Technical Committee’s email list. Others should send comments to the Technical Committee by using the “Send A Comment” button on the Technical Committee’s web page at http://www.oasis-open.org/committees/soa-eerp/.

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The non-normative errata page for this specification is located at http://www.oasis-open.org/committees/soa-eerp/.
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## Table of Contents

1. Introduction ........................................................................................................................................... 5
   1.1 Terminology ....................................................................................................................................... 5
   1.1.1 Notational Conventions ........................................................................................................... 5
   1.2 Normative References ......................................................................................................................... 6
   1.2.1 Reference .................................................................................................................................... 6
   1.3 Non-Normative References ................................................................................................................ 6
2. Business Rating Measurement ............................................................................................................. 7
   2.1 Namespaces ....................................................................................................................................... 7
   2.2 Schema Files ...................................................................................................................................... 7
   2.3 Rating Measurement Indicators .......................................................................................................... 7
3. ListOfRating .......................................................................................................................................... 9
4. Rating Credentials .............................................................................................................................. 13
5. Rating Examples ................................................................................................................................ 17
   5.1 Service Rating for an Engineering Service ....................................................................................... 17
   5.2 Service Rating for Gas-Meters Product ............................................................................................ 18
6. Conformance ...................................................................................................................................... 21
   A. Acknowledgements ............................................................................................................................ 23
   B. XML Schema for Business Rating .................................................................................................... 24
   C. Non-Normative Text ........................................................................................................................... 31
   D. Revision History ................................................................................................................................ 32
1 Introduction

This document is the specification for Business Rating (bRating) for End-to-End Resource Planning (EERP), an XML vocabulary for information exchange on business credibility, reliability and reputation of the service providers.

According to OASIS Reference Model for Service Oriented Architecture [SOA-RM], the Service Oriented Architecture (SOA) is a paradigm for organizing and utilizing distributed capabilities that may be under the control of different ownership domains. The service within SOA is a mechanism to enable access to one or more capabilities, where the access is provided using a prescribed interface and is exercised consistent with constraints and policies as specified by the service description. This specification further defines the bRating for the services within the EERP technology. The applications of this specification are any kind of business services, and they are not limited to only Web Services.

EERP applies the well-known technique for service discovery and optimization in a novel way to improve business results. It models the business process and the range of potential services, and then guides the selection and deployment of services based on the end-to-end business value.

The credibility, reliability and reputation of the service need to be understood for estimating the overall business quality of the process that uses those services. The business rating characteristics of the service defined in this bRating specification will enable EERP to determine the varieties of optimization to be supported, and to select optimal end-to-end solution.

1.1 Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

1.1.1 Notational Conventions

This specification uses the following syntax to define outlines for detailed elements:

- The syntax appears as an XML instance, but values in italics indicate data types instead of literal values.
- Characters are appended to elements and attributes to indicate cardinality:
  - "?" (0 or 1)
  - "*" (0 or more)
  - "+" (1 or more)
- The character "[]" is used to indicate a choice between alternatives.
- The characters "(" and ")" are used to indicate that contained items are to be treated as a group with respect to cardinality or choice.
- The characters "[" and "]" are used to call out references and property names.
- Ellipses (i.e., "...") indicate points of extensibility. Additional children and/or attributes MAY be added at the indicated extension points but MUST NOT contradict the semantics of the parent and/or owner, respectively. By default, if a receiver does not recognize an extension, the receiver SHOULD ignore the extension; exceptions to this processing rule, if any, are clearly indicated below.
- XML namespace prefixes (see Table 1) are used to indicate the namespace of the element being defined.

Elements and Attributes defined by this specification are referred to in the text of this document using XPath 1.0 expressions. Extensibility points are referred to using an extended version of this syntax:
• An element extensibility point is referred to using {any} in place of the element name. This indicates that any element name can be used, from any namespace other than the namespace of this specification.

• An attribute extensibility point is referred to using @{any} in place of the attribute name. This indicates that any attribute name can be used, from any namespace other than the namespace of this specification.

Extensibility points in the exemplar may not be described in the corresponding text.

1.2 Normative References


[UBL-20-udt] Universal Business Language (UBL) v2.0, Unqualified Data Type http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd


[CEFACT] CEFAC – Core components specifications - http://webster.disa.org/cefact-groups/tmg/

1.2.1 Reference

In this document reference is made to some basic elements and data types in UBL 2.0, in the following schema:

• UBL 2.0 Common Basic Components (UBL-20-cbc), UBL-CommonBasicComponents-2.0.xsd

• UBL 2.0 Unqualified Data Type (UBL-20-udt), UnqualifiedDataTypeSchemaModule-2.0.xsd

This specification is designed to work with the general Web Services framework including WSDL service descriptions, and SOAP message structure and message processing model. The XML vocabulary defined in this specification should be applicable to any version of SOAP.

1.3 Non-Normative References

None.
2 Business Rating Measurement

The XML vocabulary for Business Rating is defined in XML Schema for this specification with several specific rating measurement indicators.

2.1 Namespaces

The XML namespace URI that MUST be used by implementations of this specification is:

```
http://docs.oasis-open.org/ns/soa-eerp/rt/200903
```

Table 1 lists XML namespaces that are used in this specification. The choice of any namespace prefix is arbitrary and not semantically significant.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Namespace</th>
<th>Specification(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td><a href="http://schemas.xmlsoap.org/soap/envelope/">http://schemas.xmlsoap.org/soap/envelope/</a></td>
<td>[SOAP]</td>
</tr>
<tr>
<td>S12</td>
<td><a href="http://www.w3.org/2003/05/soap-envelope">http://www.w3.org/2003/05/soap-envelope</a></td>
<td>[SOAP12]</td>
</tr>
<tr>
<td>xsd</td>
<td><a href="http://www.w3.org/2001/XMLSchema">http://www.w3.org/2001/XMLSchema</a></td>
<td>[XML-Schema1], [XML-Schema2]</td>
</tr>
<tr>
<td>udt</td>
<td>urn:un:unece:unecfact:data:specification:UnqualifiedDataTypesSchemaModule:2</td>
<td>[UBL-20-udt]</td>
</tr>
<tr>
<td>ccts</td>
<td>urn:un:unece:unecfact:documentation:2</td>
<td>[UBL-20]</td>
</tr>
<tr>
<td>rt</td>
<td><a href="http://docs.oasis-open.org/ns/soa-eerp/rt/200903">http://docs.oasis-open.org/ns/soa-eerp/rt/200903</a></td>
<td>This specification</td>
</tr>
</tbody>
</table>

2.2 Schema Files

A normative copy of the XML Schema [XML-Schema1, XML-Schema2] description for this specification can be retrieved from the following address:

```
http://docs.oasis-open.org/soa-eerp/rt/v1.0/EERP-bRating-cd04.xsd
```

2.3 Rating Measurement Indicators

The BRating is the root element of Business Rating for EERP which is for business reliability and reputation of the service and its services provider. It can have one or more of the following elements:

- ListOfRating element is for the rating aspect of service which is provided by rating provider and measured in terms of rates for the service. Each Rating element in the ListOfRating element is issued by a rating provider, a third party rating organization, that has either an aggregated numeric number or an aggregated classification description to represent the rating measurement of the given business service.

- Credentials element is for the rating aspect of service which is measured in terms of credentials for the service that the service provider owns or holds. Credentials are issued by organizations regulating the service, such as licenses, permissions, certifications, associations, affiliations, etc. Each credential element in the Credentials element is a non-aggregated indicator for the rating...
measurement of the given business service, and it does not provide an aggregated value for the
measurement.

- Any additional elements for the rating aspect of service. For example, this could be one or more
elements of Performance:QualityAssertionEvaluation that will provide a mechanism for Service
Rating Entities to render their evaluation for how well the provider fulfills the Quality Assertion(s)
of its service.

Both the ListOfRating and Credentials elements describe information about the given business service.
They are not related however. The Rating element inside the ListOfRating must be issued by a third-party
rating organization. The service provider cannot issue a Rating for itself, but can claim what kind of
credentials it owns or holds in the Credential elements. The Rating element and Credential element
cannot be mixed. A bRating document/message, with a root element of <rt:BRating>, can have either
ListOfRating element or Credentials element, or both elements.

Syntax

```
<rt:BRating xmlns:rt="..." ...>
  <rt:ListOfRating ...
    rt:ListOfRatingType</rt:ListOfRating> ?
  <rt:Credentials ...
    rt:CredentialsType</rt:Credentials> ?
  ...
</rt:BRating >
```

The following describes the attributes and elements listed in the schema outlined above:

- /rt:BRating
  - The root element of Rating for EERP
- /rt:BRating/@{any}
  - This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
to the element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.
- /rt:BRating/rt:ListOfRating
  - List of Rating, rating aspect of the service in BRating element, is to hold those Rating elements. It
    is an optional element and has one or many Rating elements, see Section 3 for more details.
- /rt:BRating/rt:ListOfRating/@{any}
  - This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
to the ListOfRating element in the future. Unrecognized attributes MAY cause a fault or be silently
    ignored.
- /rt:BRating/rt:Credentials
  - Credentials element is for credential aspect of the service in which the service provider has such
    as license, certification, affiliations, associations, etc. It is optional element and has one or many
    Credential elements, see Section 4 for more details.
- /rt:BRating/rt:Credentials/@{any}
  - This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
to the Credentials element in the future. Unrecognized attributes MAY cause a fault or be silently
    ignored.
- /rt:BRating/rt:BRatingExtension
  - BRatingExtension element is an optional element that keeps different (extensible) elements to be
    specified in the future.
- /rt:BRating/rt:BRatingExtension/@{any}
  - This is an extensibility mechanism to allow different (extensible) elements to be specified in the
    future. Unrecognized elements MAY cause a fault or be silently ignored. This can be one or more
    elements of /rt:BRating/rt:BRatingExtension/Performance/QualityAssertionEvaluation for third-
    party Service Rating Entities to provide their evaluation for how well the provider fulfill the Quality
    Assertion(s) of this service.
3 ListOfRating

The ListOfRating element contains the list of Rating issued by a Rating Provider. The Rating Provider is a party unaffiliated with either the requester or the target of the rating request, such as a third party rating organization, given a reference to a particular business service and provider, issues either a number or a classification description for rating. Each Rating element in the ListOfRating has one of the following two elements to represent the rating measurement of the given business service:

- An aggregated number, in <rt:RatingNumeric> element
- An aggregated classification description, in <rt:RatingDescription> element

There SHOULD be zero or one ListOfRating element present in the rating of service.

Syntax

```
<rt:ListOfRating xmlns:rt="..." ...>
  <rt:Rating Type="..." ...>rt:QualityRatingType
    <rt:RatingIssuer ...>rt:IssuerType
      <rt:IssuerName languageID="...">rt:IssuerNameType<rt:IssuerName> ?
      <rt:IssuerUri ...>rt:RatingUriType<rt:IssuerUri> ?
      ...
    </rt:RatingIssuer>
    <rt:RatingDescription languageID="..." ...>rt:RatingDescriptionType<rt:RatingDescription> ?
    <rt:RatingNumeric ...>rt:RatingNumericType<rt:RatingNumeric> ?
    <rt:RatingDate ...>rt:RatingDateType<rt:RatingDate> ?
    <rt:RatingReferenceUri ...>rt:RatingUriType<rt:RatingReferenceUri> ?
    ...
  </rt:Rating>
...<rt:Rating>
</rt:ListOfRating>
```

The following describes the attributes and elements listed in the schema outlined above:

- /rt:BRating/rt:ListOfRating
  List of ratings for a service that has one or more Rating elements.

- /rt:BRating/rt:ListOfRating/rt:Rating
  The Rating element represents a rating measurement of the given business service. The rating measurement is issued by a third party rating organization. This is a required element for the ListOfRating element.

- /rt:BRating/rt:ListOfRating/rt:Rating/@Type
  Type is an optional attribute of Simple Type to identify what kind of Rating element it is.

- /rt:BRating/rt:ListOfRating/rt:Rating/@{any}
  This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the ListOfRating element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

- /rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingIssuer
  Issuing organization for this rating includes the issuer name and the URI in the Element. This element is to represent the rating issuer organization. It is a required element for Rating.

- /rt:BRating/rt:ListOfRating/rt:Rating/rt:IssuerName
  IssuerName element, Name for the issuing organization for this rating, is an optional element for RatingIssuer.

- /rt:BRating/rt:ListOfRating/rt:Rating/rt:IssuerName/@languageID

It is the URI that represent the issuer organization. It is a required element for RatingIssuer.

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the IssuerUri element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

Rating description for the rating where the rating can be represented in String format, such as Good, Fair, Average, etc. It is an optional element for Rating.


This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the RatingDescription element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

RatingNumeric element, Numeric value for the rating, is an optional element for Rating.

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the RatingNumeric element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

RatingDate is the date when this Rating is obtained. It is an optional element for Rating.

Expired is an optional attribute to indicate this Rating is expired or not. The value of this Expired attribute is set to true means this Rating has been expired as of the RatingDate.

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the RatingDate element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

RatingReferenceUri, Web page URL or other URI for this rating to reference to, is an optional element for the Rating element.

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the RatingReferenceUri element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

Examples

The following non-normative example illustrates the use of List of Rating element. It describes a Rating element that is issued by Better Business Bureau:

```xml
<?xml version="1.0" encoding="utf-8"?>
<ListOfRating xmlns="..." ...>
```


The following non-normative example illustrates the use of List of Rating element. It describes a Rating element that is issued by 51Honest.org in China:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<BRating xmlns="..." ...>
   <ListOfRating>
      <Rating Type="51honest">
         <IssuerName languageID="zh-CN">农博网</IssuerName>
         <IssuerUri>www.51honest.org</IssuerUri>
         <RatingDescription languageID="zh-CN">信星计划</RatingDescription>
         <RatingNumeric>175</RatingNumeric>
         <RatingDate>2009-03-06</RatingDate>
         <RatingReferenceUri>
            http://www.51honest.org/index.jsp?url=detail.credit%3faction=hywzMemberInfo%2
credcode=300001000036803
         </RatingReferenceUri>
      </Rating>
   </ListOfRating>
</BRating>
```
4 Rating Credentials

The Rating Credentials element for EERP-Rating, describes the credentials held by the service provider with respect to a specific service.

Credentials, such as licenses, permissions, certifications, awards, associations, and affiliations, are issued with respect to a service provider and its services by organizations that regulate the service. They are different from the credentials for authentication in the security term. Credentials demonstrate the credibility of a given service offered by a service provider.

Unlike the Rating element inside the ListOfRating, each credential element in the Credentials element is an independent, non-aggregated indicator for the rating measurement of the given business service.

There MAY be zero or one Credentials element present in the rating of service.

Syntax

```
<rt:Credentials xmlns:bqos="..." ...>
  <rt:Credential>
    <rt:CredentialIssuer ...>rt:IssuerType
      <rt:IssuerName languageID="...">rt:IssuerNameType</rt:IssuerName>
      <rt:IssuerUri ...>rt:RatingUriType</rt:IssuerUri>
      ...
    </rt:CredentialIssuer>
    <rt:CredentialClass languageID="..." ...>rt:CredentialClassType
      <rt:License languageID="...">rt:LicenseType</rt:License>
      <rt:CredentialDate ...>rt:CredentialDateType
        <rt:DateIssued ...>rt:DateIssuedType</rt:DateIssued>
        <rt:ExpirationDate ...>rt:ExpirationDateType</rt:ExpirationDate>
        ...
      </rt:CredentialDate>
      <rt:CredentialReferenceUri ...>rt:RatingUriType</rt:CredentialReferenceUri>
      ...
    </rt:Credential>
  </rt:Credential>
</rt:Credentials>
```

The following describes the attributes and elements listed in the schema outlined above:

/rt:BRating/rt:Credentials

Credential aspect of the service which the service provider has, including certification, affiliations and associations. It has a list of credential for Credentials.

/rt:BRating/rt:Credentials/rt:Credential

The Credential element is for each credential, certification, affiliation or association that the service provider has for the service. This is a required element for the Credentials element.

/rt:BRating/rt:Credentials/rt:Credential/@Type

Type of the credential, an optional attribute in the Credential element, using enumeration type, and the value SHOULD be one of the following:

- Affiliation
- Association
- Award
- Certification
- License
- Membership
- Permission
- Others

/rt:BRating/rt:Credentials/rt:Credential/@{any}

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the Credential element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

/rt:BRating/rt:Credentials/rt:Credential/rt:CredentialIssuer
CredentialIssuer element is for issuing organization for this credential, such as the issuer of certification, association, affiliation or Credential. For example, the Issuer can be AAA, BBB, or State of California, etc. This element is a required element for Credential, which includes the issuer name and the URI that represent this rating issuer organization.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialIssuer/rt:IssuerName

IssuerName element, Issuer's name for the issuing organization for this rating or credential, is an optional element for CredentialIssuer.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialIssuer/rt:IssuerName/@languageID


rt:BRating/rt:Credentials/rt:Credential/rt:CredentialIssuer/rt:IssuerUri

It is the URI that represent the issuer organization. It is a required element for CredentialIssuer.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialIssuer/rt:IssuerUri/@{any}

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the IssuerUri element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialIssuer/{any}

This is an extensibility mechanism to allow different (extensible) property or attribute elements to be specified in the future. Unrecognized elements MAY cause a fault or be silently ignored.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialClass

CredentialClass element is the classification of the credential such as five-stars, or golden member. It is an optional element for the Credential. It is an optional element for the Credential.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialClass/@languageID


rt:BRating/rt:Credentials/rt:Credential/rt:CredentialClass/@{any}

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the CredentialClass element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

rt:BRating/rt:Credentials/rt:Credential/rt:Credential/rt:License

License element, the license number or membership number of the credential, is an optional element for the Credential element.

rt:BRating/rt:Credentials/rt:Credential/rt:License/@languageID


rt:BRating/rt:Credentials/rt:Credential/rt:License/@{any}

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the License element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialDate

CredentialDate element is the date on this credential, including date when this credential, license or certificate is issued and the expiration date for this license or membership. It is an optional element for the Credential element.

rt:BRating/rt:Credentials/rt:Credential/rt:CredentialDate/@{any}
This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
to the CredentialDate element in the future. Unrecognized attributes MAY cause a fault or be
silently ignored.

/rt:BRating/rt:Credentials/rt:Credential/rt:CredentialDate/rt:DateIssued

DateIssued element is the date when this credential, license or certificate is issued. It is an
optional element for the CredentialDate element.

/rt:BRating/rt:Credentials/rt:Credential/rt:CredentialDate/rt:ExpirationDate

ExpirationDate element, Expiration date for this license or membership, is an optional element for
the CredentialDate element.

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
to the ExpirationDate element in the future. Unrecognized attributes MAY cause a fault or be
silently ignored.

/rt:BRating/rt:Credentials/rt:Credential/rt:CredentialReferenceUri

CredentialReferenceUri element, Web page URL or other URI for this credential reference, is an
optional element for Credential.

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
to the CredentialReferenceUri element in the future. Unrecognized attributes MAY cause a fault or be
silently ignored.

/rt:BRating/rt:Credentials/rt:Credential/{any}

This is an extensibility mechanism to allow different (extensible) property or attribute elements to
be specified in the future. Unrecognized elements MAY cause a fault or be silently ignored.

Examples

The following non-normative example illustrates the use of rating Credentials element. It describes the
credential of professional license issued by California Board For Professional Engineers And Land
Surveyors:

```
<xml version="1.0" encoding="utf-8"?>
  <Credentials xmlns="..." ...>
    <Credential Type="License">
      <CredentialIssuer>
        <IssuerName languageID="EN">California Board For Professional Engineers And Land Surveyors</IssuerName>
        <IssuerUri>http://www.pels.ca.gov/</IssuerUri>
      </CredentialIssuer>
      <CredentialClass languageID="EN">CIVIL ENGINEER</CredentialClass>
      <License languageID="EN">42456</License>
      <CredentialDate>
        <ExpirationDate>2010-03-31</ExpirationDate>
      </CredentialDate>
      <CredentialReferenceUri>http://www2.dca.ca.gov/pls/wllpub/WLLQRYNA$LCEV2.QueryView?P_LICENSE_NUMBER=42456&amp;P_LTE_ID=741</CredentialReferenceUri>
    </Credential>
  </Credentials>
```

The following non-normative example illustrates the use of rating Credentials element. It describes the
credential of member of ASCE:
The following non-normative example illustrates the use of rating Credentials element. It describes the credential of Association type issued by Better Business Bureau, Inc.:

```xml
<?xml version="1.0" encoding="utf-8"?>
<Credentials xmlns="" ...""
  <Credential Type="Association">
    <CredentialIssuer>
      <IssuerName languageID="EN">Better Business Bureau, Inc.</IssuerName>
      <IssuerUri>http://goldengate.bbb.org/</IssuerUri>
    </CredentialIssuer>
    <CredentialClass languageID="EN">3</CredentialClass>
    <CredentialReferenceUri>http://www.res99.com/hotel/10021453-102008020.html?ses=1e65c27bad81e82b07a39070fed04d87</CredentialReferenceUri>
  </Credential>
</Credentials>
```
5 Rating Examples

The examples in this section are non-normative.

5.1 Service Rating for an Engineering Service

The following example illustrates a Business Rating result of a civil engineering service. The service provider has the following rating and credentials for a service:

The service is classified as A+ by BBB (Better Business Bureau, Inc.), as of May 8th, 2009.

The service provider holds a civil engineer’s professional license as one of credentials, which is issued by California Board for Professional Engineers and Land Surveyors. This license expiration date is December 31st, 2010.

In addition, the service provider is a member of ASCE (American Society of Civil Engineers since August 13th, 1987. This membership expiration date is December 31st, 2010.

The following example illustrates the whole Rating document for above ratings:

```xml
<Rating xmlns="..." ...>
  <ListOfRating>
    <Rating Type="BBB">
      <IssuerName languageID="EN">Better Business Bureau, Inc.</IssuerName>
      <IssuerUri>http://www.bbb.org/business-reviews/ratings/</IssuerUri>
      <RatingDescription languageID="EN">A+</RatingDescription>
      <RatingDate>2009-05-08</RatingDate>
    </Rating>
    <Credentials>
      <Credential Type="License">
        <IssuerName languageID="EN">California Board For Professional Engineers And Land Surveyors</IssuerName>
        <IssuerUri>http://www.pels.ca.gov/</IssuerUri>
        <CredentialClass languageID="EN">CIVIL ENGINEER</CredentialClass>
        <License languageID="EN">42456</License>
        <CredentialDate>
          <ExpirationDate>2010-12-31</ExpirationDate>
          <CredentialReferenceUri>http://www2.dca.ca.gov/pls/wllpub/WLLQRYNA$LCEV2.QueryView?P_LICENSE.NUMBER=42456&amp;P_LTE_ID=741</CredentialReferenceUri>
        </CredentialDate>
      </Credential>
      <Credential Type="Membership">
        <IssuerName languageID="EN">American Society of Civil Engineers</IssuerName>
        <IssuerUri>http://www.asce.org/</IssuerUri>
        <CredentialClass languageID="EN">Member</CredentialClass>
      </Credential>
    </Credentials>
  </ListOfRating>
</Rating>
```
5.2 Service Rating for Gas-Meters Product

This Rating example illustrates the ratings and credentials for gas-meters produced by a fictitious Hangzhou Innover Technology Co. Ltd.

The Rating message has the following contents:

1) Credit rating on this provider is 980.1, rated by 51Honest.org (http://www.51Honest.org), a third-party organization in China

2) License on gas-meter production is issued in December, 1997, by a department in government that is Zhejiang Bureau of Quality and Technical Supervision in the China (http://www.zjbts.gov.cn/).

3) Certificate on gas-meter product is certificated as the first Dual-Explosion-Proof Certificate in November, 1997, Certificate is issued by a third-party organization, National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI) in Shanghai, China (http://www.sipai.com/sitiias/nepsi.asp)

```xml
<BRating xmlns="...">
<ListOfRating>
  <Rating Type="Credit">
    <IssuerName languageID="zh-CN">信星计划51Honest.org</IssuerName>
    <IssuerUri>http://www.51Honest.org</IssuerUri>
    <RatingNumeric>980.1</RatingNumeric>
    <RatingDate>2009-04-31</RatingDate>
    <RatingReferenceUri/>
  </Rating>
  <Credentials>
    <Credential Type="License">
      <IssuerName languageID="zh-CN">浙江省质量技术监督局</IssuerName>
      <IssuerUri>http://www.zjbts.gov.cn/</IssuerUri>
      <License languageID="en-us">ZJJHJDJ-JL1997120001</License>
      <CredentialDate>
        <DateIssued>1997-12-01</DateIssued>
      </CredentialDate>
    </Credential>
    <Credential Type="Certification">
      <IssuerName languageID="zh-CN">中华人民共和国计量器具生产制造许可证</IssuerName>
      <IssuerUri>http://www.sipai.com/sitiias/nepsi.asp</IssuerUri>
      <License languageID="en">NEPSI-FB1997110001</License>
      <CredentialDate>
        <DateIssued>1997-11-01</DateIssued>
      </CredentialDate>
    </Credential>
  </Credentials>
</Rating>
</ListOfRating>
</BRating>
```
(36)   </Credential>
(37)   </Credentials>
(38)   </BRating>
6 Conformance

An implementation conforms to this specification if it satisfies all of the MUST or REQUIRED level requirements defined within this specification. A SOAP Node MUST NOT use the XML namespace identifier for this specification (listed in Section 1.1) within SOAP Envelopes unless it is compliant with this specification.

This specification references a number of other specifications (listed in Section 1.4.2). In order to comply with this specification, an implementation MUST implement the portions of referenced specifications necessary to comply with the required provisions of this specification. Additionally, the implementation of the portions of the referenced specifications that are specifically cited in this specification MUST comply with the rules for those portions as established in the referenced specification.

Normative text within this specification takes precedence over normative outlines (as described in section 1.4.1), which in turn take precedence over the XML Schema [XML Schema Part 1, Part 2] and WSDL [WSDL 1.1] descriptions. That is, the normative text in this specification further constrains the schemas and/or WSDL that are part of this specification; and this specification contains further constraints on the elements defined in referenced schemas.

The minimum set of information exchange for Business Rating that would allow conforming applications to exchange information and satisfy the conformance should have either /rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingIssuer/rt:IssuerUri element or /rt:BRating/rt:Credentials/rt:Credential/rt:CredentialIssuer/rt:IssuerUri element, like this:

```xml
<?xml version="1.0" encoding="utf-8"?>
<BRating xmlns="http://docs.oasis-open.org/ns/soa-eerp/rt/200903">
  <ListOfRating>
    <Rating>
      <RatingIssuer>
        <IssuerUri>http://www.sample-rating-issuer.org</IssuerUri>
      </RatingIssuer>
      
      ...
    </Rating>
  </ListOfRating>
</BRating>
```

Or like this:

```xml
<?xml version="1.0" encoding="utf-8"?>
<BRating xmlns="http://docs.oasis-open.org/ns/soa-eerp/rt/200903">
  <Credentials>
    <Credential>
      <CredentialIssuer>
        <IssuerUri>http://www.sample-cred-issuer.com</IssuerUri>
      </CredentialIssuer>
      
      ...
    </Credential>
  </Credentials>
</BRating>
```

The following nearly empty artifacts do not conform to this specification:

```xml
<?xml version="1.0" encoding="utf-8"?>
<BRating xmlns="http://docs.oasis-open.org/ns/soa-eerp/rt/200903">
  <ListOfRating/>
</BRating>
```
The following nearly empty artifacts do not conform to this specification, either:

```
<?xml version="1.0" encoding="utf-8"?>
<BRating xmlns="http://docs.oasis-open.org/ns/soa-eerp/rt/200903">
  <Credentials/>
</BRating>
```

This specification defines a number of extensions; compliant services are NOT REQUIRED to implement those extensions defined in this specification. However, if a service implements an aspect of the specification, it MUST comply with the requirements specified (e.g. related "MUST" statements). If an implementation silently ignores unrecognized attributes where any attribute is allowed, or silently ignores unrecognized elements where any element is allowed, should be considered as an interoperable implementation.
A. Acknowledgements

The following individuals have participated in the creation of this specification and are gratefully acknowledged:

Participants:

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rex Brooks</td>
<td>Individual</td>
</tr>
<tr>
<td>Szu Chang</td>
<td>Changfeng Open Standards Platform Software Alliance</td>
</tr>
<tr>
<td>William Cox</td>
<td>Individual</td>
</tr>
<tr>
<td>Andy Lee</td>
<td>Changfeng Open Standards Platform Software Alliance</td>
</tr>
<tr>
<td>Carl Mattocks</td>
<td>Individual</td>
</tr>
<tr>
<td>Yulin Xu</td>
<td>Changfeng Open Standards Platform Software Alliance</td>
</tr>
<tr>
<td>Paul Yang</td>
<td>Changfeng Open Standards Platform Software Alliance</td>
</tr>
<tr>
<td>James Zhili Zhang</td>
<td>TIBCO Software Inc.</td>
</tr>
<tr>
<td>Hong Zhou</td>
<td>Changfeng Open Standards Platform Software Alliance</td>
</tr>
</tbody>
</table>
B. XML Schema for Business Rating

Note: The separate machine readable schema document, listed on Section 2.2, is normative. The text included here is non-normative.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!-- Document Type: EERP-Rating CD04
Create On: 09/12/2010 -->

<?xml:schema
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns="http://docs.oasis-open.org/ns/soa-eerp/rt/200903"
xmlns:eerp="http://docs.oasis-open.org/ns/soa-eerp/rt/200903"
xmlns:udt="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
xmlns:xs=http://www.w3.org/2001/XMLSchema
xmlns:rt="http://docs.oasis-open.org/ns/soa-eerp/rt/200903"
targetNamespace="http://docs.oasis-open.org/ns/soa-eerp/rt/200903"
elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.0">
Credential elements which are indicators to represent for business reliability and reputation of the service and its services provider. It has both ListOfRating and Credentials elements which are indicators to represent for business reliability and reputation of the service and its services provider. The BRating is the root element of Business Rating for EERP which is for business reliability and reputation of the service and its services provider. The BRating is the root element of Business Rating for EERP which is for business reliability and reputation of the service and its services provider. The BRating is the root element of Business Rating for EERP which is for business reliability and reputation of the service and its services provider. The BRating is the root element of Business Rating for EERP which is for business reliability and reputation of the service and its services provider.

Credential elements which are indicators to represent for business reliability and reputation of the service and its services provider.

The BRating is the root element of Business Rating for EERP which is for business reliability and reputation of the service and its services provider. It has both ListOfRating and Credentials elements which are indicators to represent for business reliability and reputation of the service and its services provider. It has both ListOfRating and Credentials elements which are indicators to represent for business reliability and reputation of the service and its services provider. It has both ListOfRating and Credentials elements which are indicators to represent for business reliability and reputation of the service and its services provider. It has both ListOfRating and Credentials elements which are indicators to represent for business reliability and reputation of the service and its services provider.

The Rating Credentials element for EERP-Rating, describes the credentials held by the service provider with respect to a specific service. Credentials may be issued with respect to a service provider and service by third-party organizations, such as licenses, permissions, certifications, awards, associations, and affiliations. The Rating Credentials element for EERP-Rating, describes the credentials held by the service provider with respect to a specific service. Credentials may be issued with respect to a service provider and service by third-party organizations, such as licenses, permissions, certifications, awards, associations, and affiliations. The Rating Credentials element for EERP-Rating, describes the credentials held by the service provider with respect to a specific service. Credentials may be issued with respect to a service provider and service by third-party organizations, such as licenses, permissions, certifications, awards, associations, and affiliations. The Rating Credentials element for EERP-Rating, describes the credentials held by the service provider with respect to a specific service. Credentials may be issued with respect to a service provider and service by third-party organizations, such as licenses, permissions, certifications, awards, associations, and affiliations.

The Credential element is for each credential, certification, affiliation or association that the service provider has for the service.

The CredentialDate element is the date on this credential, including date when this credential, license or certificate is issued and the expiration date for this license or membership.

The CredentialIssuer element is the classification of the credential such as five-stars, or golden member.

The CredentialIssuer element is the classification of the credential such as five-stars, or golden member.

The IssuerName element represents the name of affiliations or associations.

The IssuerUri element represents the URI that represent the issuer organization.
<xsd:element name="license" type="LicenseType">
  <xsd:annotation>
    <xsd:documentation>License number</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="ListOfRating" type="ListOfRatingType">
  <xsd:annotation>
    <xsd:documentation>The ListOfRating element contains the list of Rating issued by a third party rating organization. Each Rating element in the ListOfRating has one of the two elements to represent the rating measurement of the given business service: 1) - an aggregated number, in RatingNumeric element. 2) - an aggregated classification description, in RatingDescription service. The rating measurement is issued by a third party rating organization.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="Rating" type="RatingType">
  <xsd:annotation>
    <xsd:documentation>The Rating element represents a rating measurement of the given business service. The rating measurement is issued by a third party rating organization.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="RatingDescription" type="RatingDescriptionType">
  <xsd:annotation>
    <xsd:documentation>The RatingDescription element contains the String format, such as Good, Fair, Average, etc.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="RatingDate" type="RatingDateType">
  <xsd:annotation>
    <xsd:documentation>Date when this Rating is obtained</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="RatingIssuer" type="IssuerType">
  <xsd:annotation>
    <xsd:documentation>The Issuing organization for this quality/rating, including the issuer name and the URI that represent this rating issuer organization</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="RatingNumeric" type="RatingNumericType">
  <xsd:annotation>
    <xsd:documentation>Rating numeric number</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="RatingReferenceUri" type="RatingUriType">
  <xsd:annotation>
    <xsd:documentation>Web page URL or other URI for this rating to reference</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xs:annotation processContents="lax">
  <xsd:documentation>
    <!-- Type Definitions -->
  </xsd:documentation>
</xs:annotation>

<xs:annotation processContents="lax">
  <xsd:documentation>
    <! Extension -->
  </xsd:documentation>
</xs:annotation>

<xs:annotation processContents="lax">
  <xsd:documentation>
    <!------- Type Definitions ----- -->
  </xsd:documentation>
</xs:annotation>

<xs:annotation processContents="lax">
  <xsd:documentation>
    Complex type for membership classification</xsd:documentation>
</xs:annotation>

<xs:annotation processContents="lax">
  <xsd:documentation>
    Complex type for the date on this credential</xsd:documentation>
</xs:annotation>
<xsd:complexType name="CredentialsType">
  <xsd:annotation>
    <xsd:documentation>Complex type for Credentials and association</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Credential" maxOccurs="unbounded">
      <xsd:annotation>
        <xsd:documentation>The Credential element is for each credential, certification, affiliation or association that the service provider has for the service. This is a required element for the Credentials element.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element name="CredentialIssuer">
      <xsd:annotation>
        <xsd:documentation>Issuing organization for this credential, such as the name of certification, association, affiliation or credential, such as AAA, BBB, or State of California, including the issuer name and the URI that represent this rating issuer organization.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="CredentialClass" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>CredentialClass element is the classification of the credential such as five-stars, or golden member. It is an optional element for the Credential.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="License" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>License element, the license number or membership number of the credential, is an optional element for the Credential element.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="CredentialDate" minOccurs="0"/>
    <xsd:element name="CredentialReferenceUri" type="RatingUriType" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>CredentialReferenceUri element, Web page URL or other URI for this credential reference, is an optional element for Credential. </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
  </xsd:sequence>
  <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
</xsd:complexType>
<xsd:complexType name="IssuerNameType">
  <xsd:annotation>
    <xsd:documentation>
      Complex type for the Rating issuer name
    </xsd:documentation>
  </xsd:annotation>
  <xsd:complexContent>
    <xsd:restriction base="cbc:NameType" minOccurs="0">
      <xsd:extension base="IssuerNameType">
        <xsd:sequence>
          <xsd:element ref="IssuerName" minOccurs="0" />
        </xsd:sequence>
      </xsd:extension>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="ExpirationDateType">
  <xsd:annotation>
    <xsd:documentation>
      Complex type of expiration date
    </xsd:documentation>
  </xsd:annotation>
  <xsd:simpleContent>
    <xsd:documentation>
      ##other
    </xsd:documentation>
    <xsd:anyAttribute namespace="##any" processContents="lax" />
  </xsd:simpleContent>
</xsd:complexType>

<xsd:complexType name="IssuerUri">
  <xsd:annotation>
    <xsd:documentation>
      The URI that represent the issuer organization.
    </xsd:documentation>
  </xsd:annotation>
  <xsd:complexContent>
    <xsd:restriction base="cbc:StartDateTimeType">
      <xsd:extension base="IssuerUri">
        <xsd:sequence>
          <xsd:element ref="IssuerUri" />
        </xsd:sequence>
      </xsd:extension>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="BRaingExtension">
  <xsd:annotation>
    <xsd:documentation>
      BRaingExtension
    </xsd:documentation>
  </xsd:annotation>
  <xsd:complexContent>
    <xsd:restriction base="cbc:ExpiryDateType">
      <xsd:extension base="IssuerUri">
        <xsd:sequence>
          <xsd:element ref="IssuerUri" />
        </xsd:sequence>
      </xsd:extension>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="Credentials">
  <xsd:annotation>
    <xsd:documentation>
      Credentials element is for the rating aspect of service which is
      measured in terms of credentials for the service that the service provider owns or holds.
      Credentials are issued by organizations for the service, such as licenses, permissions,
      certifications, associations, affiliations, etc. Each credential element in the Credentials
      element is a non-aggregated indicator for the rating measurement of the given business service.
    </xsd:documentation>
  </xsd:annotation>
  <xsd:complexContent>
    <xsd:restriction base="cbc:CredentialType">
      <xsd:extension base="IssuerNameType">
        <xsd:sequence>
          <xsd:element ref="IssuerName" minOccurs="0" />
        </xsd:sequence>
      </xsd:extension>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="ListOfRating">
  <xsd:annotation>
    <xsd:documentation>
      ListOfRating element is for the rating aspect of service which is provided by third party and measured in terms of rates for the service. Each Rating element in the ListOfRating element is issued by a rating organization that has either an aggregated numeric number or an aggregated classification description to represent the rating measurement of the given business service.
    </xsd:documentation>
  </xsd:annotation>
  <xsd:complexContent>
    <xsd:restriction base="cbc:RatingType">
      <xsd:extension base="IssuerUri">
        <xsd:sequence>
          <xsd:element ref="IssuerUri" />
        </xsd:sequence>
      </xsd:extension>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>
business service. The rating measurement is issued by a third party rating organization.
<xsd:documentation>Rating description for the rating where the rating can be represented in String format, such as Good, Fair, Average, etc. It is an optional element for Rating.</xsd:documentation>
</xsd:annotation>
<xsd:element ref="RatingNumeric" minOccurs="0">
<xsd:annotation>
<xsd:documentation>RatingNumeric element, Numeric value for the rating, is an optional element for Rating.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element ref="RatingDate" minOccurs="0">
<xsd:annotation>
<xsd:documentation>Date when this Rating is obtained. It is an optional element for Rating.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element ref="RatingReferenceUri" minOccurs="0">
<xsd:annotation>
<xsd:documentation>RatingReferenceUri, Web page URL or other URI for this rating to reference to, is an optional element for the Rating element.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>Complex type for the rating reference URI or Web page URL.</xsd:documentation>
</xsd:annotation>
<xsd:simpleContent>
<xsd:extension base="xsd:anyURI">
<xsd:anyAttribute namespace="##any" processContents="lax"/>
</xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<xsd:simpleType name="CrendtialTypeEnum">
<xsd:annotation>
<xsd:documentation>Credntial Type enumeration</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
<xsd:enumeration value="Affiliation"/>
<xsd:enumeration value="Association"/>
<xsd:enumeration value="Award"/>
<xsd:enumeration value="Certification"/>
<xsd:enumeration value="License"/>
<xsd:enumeration value="Membership"/>
<xsd:enumeration value="Permission"/>
<xsd:enumeration value="Others"/>
</xsd:restriction>
</xsd:simpleType>
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C. Non-Normative Text

None
### D. Revision History

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<th>Date</th>
<th>Editor</th>
<th>Changes Made</th>
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<tr>
<td>0.9</td>
<td>03/17/2009</td>
<td>Szu Chang</td>
<td>Initial draft</td>
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<tr>
<td>WD01</td>
<td>04/23/2009</td>
<td>Szu Chang</td>
<td>Renamed draft 0.9 to working draft 01 (WD01)</td>
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<tr>
<td>WD02</td>
<td>05/09/2009</td>
<td>Szu Chang</td>
<td>Fixed Issue #I007, I008 and I009, and get ready for Committee Draft CD01</td>
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<td>WD03</td>
<td>05/17/2009</td>
<td>Szu Chang</td>
<td>Added conformance section</td>
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<tr>
<td>WD04</td>
<td>06/08/2009</td>
<td>Szu Chang</td>
<td>Fixed Issue #I018</td>
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<tr>
<td>WD05</td>
<td>06/12/2009</td>
<td>Szu Chang</td>
<td>Fixed Issue #I018 that changed BusinessRating to BRating</td>
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<td>WD07</td>
<td>07/03/2009</td>
<td>Szu Chang</td>
<td>Fixed Issue #I027, I034, I050, and I054.</td>
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<td>CD02</td>
<td>07/11/2009</td>
<td>Szu Chang</td>
<td>Changed WD07 to CD02 after approved by TC</td>
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<td>CD03</td>
<td>01/06/2010</td>
<td>Szu Chang</td>
<td>Changed NS and fixed URIs from CD02 to CD03</td>
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<td>WD08</td>
<td>05/10/2010</td>
<td>Szu Chang</td>
<td>Changed after the public review comments</td>
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<tr>
<td>WD09</td>
<td>06/23/2010</td>
<td>Szu Chang</td>
<td>Changed after the first round of review PR comments</td>
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<tr>
<td>CD04</td>
<td>09/12/2010</td>
<td>Szu Chang</td>
<td>Changed from WS09 to CD04 for TC to approve</td>
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