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

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Technical Committee:
OASIS Service-Oriented Architecture End-to-End Resource Planning (SOA-EERP) TC

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Related work:
This specification is related to:
- SOA-EERP Business Service Level Agreement specification, Version 1.0,
- SOA-EERP Business Quality of Service, Version 1,

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.

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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 creditability, 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, composition, simulation, and optimization techniques 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 creditability, 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 Business Rating (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


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-cbcUBL-20-cbc), UBL-CommonBasicComponents-2.0.xsd
- UBL 2.0 Unqualified Data Type (UBL-20-udt)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 of the XML vocabulary is defined in XML Schema format that has many 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 41: Prefixes and XML Namespaces used in this specification.

<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], [SOAP]</td>
</tr>
<tr>
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<td>[UBL-20-udt], [CEFACT], [UBL-20-udt]</td>
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<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/eerp-rating/200903/eerp-rating-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 third-party 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 for 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. This can be for example, this could be one or more elements of Performance, QualityAssertionEvaluation, QualityAssertionEvaluation that will provide a mechanism for Service Rating Entities to render their evaluation for how well the Service 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 Business Rating document/message, with a root element of <rt:BRating>, can have either ListOfRating element or Credentials element, or both elements.

**Syntax**

```xml
<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:

1. /rt:BRating
2. The root element of Rating for EERP
3. /rt:BRating/@{any}
4. 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.
5. /rt:BRating/rt:ListOfRating
6. 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.
7. /rt:BRating/rt:ListOfRating/@{any}
8. 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.
9. /rt:BRating/rt:Credentials
10. 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.
11. /rt:BRating/rt:Credentials/@{any}
12. 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.

BRatingExtension element is an optional element that keeps different (extensible) elements to be specified in the future.

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:BRatingExtension/Performance/QualityAssertionEvaluationQualityAssertionEvaluationQualityAssertionEvaluation for third-party Service Rating Entities to provide their evaluation for how well the Service Provider fulfill the Quality Assertion(s) of this service.
3 ListOfRating

The ListOfRating element contains the list of Rating issued by a third-party rating organization. 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:IssuerType ...
    rt:IssuerName languageID="...">rt:IssuerNameType</rt:IssuerName> ?
    rt:IssuerUri ...>rt:IssuerUriType</rt:IssuerUri> ...
  </rt:RatingIssuer>
  <rt:RatingDescription languageID="..." ...
    rt:RatingDescriptionType</rt:RatingDescription> ?
  </rt:RatingDescription> ?
  <rt:RatingNumeric ...>rt:RatingNumericType</rt:RatingNumeric> ?
  <rt:RatingDate ...>rt:RatingDateType</rt:RatingDate> ?
  <rt:RatingReferenceUri ...>rt:RatingReferenceUriType</rt:RatingReferenceUri> ?
  ...
  <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:Issuer
  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:Issuer/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:Issuer/rt:IssuerName/@languageID


````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingIssuer/rt:IssuerUri
   It is the URI that represent the issuer organization. It is a required element for RatingIssuer.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingIssuer/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.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingDescription
   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.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingDescription/@languageID
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingDescription/@{any}
   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.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingNumeric
   RatingNumeric element, Numeric value for the rating, is an optional element for Rating.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingNumeric/@{any}
   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.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingDate
   RatingDate is the date when this Rating is obtained. It is an optional element for Rating.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingDate/@Expired
   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.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingDate/@{any}
   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.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingReferenceUri
   RatingReferenceUri, Web page URL or other URI for this rating to reference to, is an optional element for the Rating element.
````

````xml
/rt:BRating/rt:ListOfRating/rt:Rating/rt:RatingReferenceUri/@{any}
   This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the Rating element in the future. Unrecognized attributes MAY cause a fault or be silently ignored.
````
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%26credcodestr=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 may be issued with respect to a service provider and service by third-party organizations, 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:CredentialType ...
    <rt:IssuerType ...
      <rt:IssuerName languageID="..." rt:IssuerNameType ...
      <rt:IssuerUri ...rt:RatingUriType ...
    ...
    <rt:CredentialIssuer>
    <rt:CredentialClass languageID="...
      rt:CredentialClassType ...
    <rt:License languageID="...
      rt:LicenseType ...
    ...
    <rt:CredentialDate ...
    <rt:CredentialDateType ...
    <rt:DateIssued ...
    <rt:ExpirationDate ...
    <rt:CredentialReferenceUri ...
    ...
  </rt:Credential>
</rt:Credentials>
```

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

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

```
/r:BRating/r:Credentials/r: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.
```

```
/r:BRating/r:Credentials/@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
```

```
/r:BRating/r:Credentials/@{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 parameters 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: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:DateIssued/@{any}

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

/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.

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

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.

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

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/parameters to be specified in the future. Unrecognized elements MAY cause a fault or be silently ignored.

**Example**

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
<?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 with 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:

1. The service is classified as A+ by BBB (Better Business Bureau, Inc.), as of May 8th, 2009.
2. 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.
3. 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
<?xml version="1.0" encoding="UTF-8"?>
<BRating 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>
</ListOfRating>
<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>
    </CredentialDate>
    <CredentialReferenceUri>http://www2.dca.ca.gov/pls/wllpub/WLLQRYNA$LCEV2.QueryView?P_LICENSE_NUMBER=42456&amp;P_LTE_ID=741</CredentialReferenceUri>
  </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>
```
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, 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.

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.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<BRating xmlns=""
<ListOfRating>
  <Rating Type="Credit">
    <RatingIssuer>
      <IssuerName languageID="zh-CN">信星计划51Honest.org</IssuerName>
      <IssuerUri>http://www.51Honest.org</IssuerUri>
    </RatingIssuer>
    <RatingNumeric>980.1</RatingNumeric>
    <RatingDate>2009-04-31</RatingDate>
    <RatingReferenceUri/>
  </Rating>
</ListOfRating>
<Credentials>
  <Credential Type="License">
    <CredentialIssuer>
      <IssuerName languageID="zh-CN">浙江省质量技术监督局</IssuerName>
      <IssuerUri>http://www.zjbts.gov.cn/</IssuerUri>
    </CredentialIssuer>
    <CredentialClass languageID="en">中华人民共和国计量器具生产制造许可证</CredentialClass>
    <License languageID="en-us">ZJHJDJ-JL1997120001</License>
    <DateIssued>1997-12-01</DateIssued>
  </Credential>
</Credentials>
```

```xml
<Credential Type="Certification">
  <CredentialIssuer>
    <IssuerName languageID="en">National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation in Shanghai</IssuerName>
    <IssuerUri>http://www.sipai.com/sitiias/nepsi.asp</IssuerUri>
  </CredentialIssuer>
  <CredentialClass languageID="en">The first Dual-Explosion-Proof Certificate</CredentialClass>
  <License languageID="en-us">NEPSI-FB1997110001</License>
  <DateIssued>1997-11-01</DateIssued>
</Credential>
```
(35)  </CredentialDate>
(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 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 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 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
(001) <?xml version="1.0" encoding="utf-8"?>
(002) <BRating xmlns="http://docs.oasis-open.org/ns/soa-eerp.rt/200903">
(003)  <Credentials/>
(004) </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>Affiliation</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>
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<td>Individual</td>
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<td>Andy Lee</td>
<td>Changfeng Open Standards Platform Software Alliance</td>
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<td>Carl Mattocks</td>
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<td>Changfeng Open Standards Platform Software Alliance</td>
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<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  cd03 cd04
Create On: 01/06/09/12/2010
-->
<!-- == xsd:schema Element With Namespaces Declarations == -->
<!-- == Copyright Notice == -->
<!-- OASIS takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights. Information on OASIS's procedures with respect to rights in OASIS specifications can be found at the OASIS website. Copies of claims of rights made available for publication and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementors or users of this specification, can be obtained from the OASIS Executive Director.

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-->
```
schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-2.0.xsd"/>
schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypesSchemaModule-2.0.xsd"/>

--- Root Element ---
<xsd:element name="BRating" type="BRatingType">
  <xsd:annotation>
    <xsd:documentation>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. </xsd:documentation>
  </xsd:annotation>
</xsd:element>

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credential</td>
<td>The Credential element is for each credential, certification, affiliation or association that the service provider has for the service.</td>
</tr>
<tr>
<td>CredentialClass</td>
<td>CredentialClass element is the classification of the credential such as five-stars, or golden member.</td>
</tr>
<tr>
<td>CredentialDate</td>
<td>CredentialDate element is the date on this credential, including date when this credential, license or certificate was issued and the expiration date for this license or membership.</td>
</tr>
<tr>
<td>CredentialIssuer</td>
<td>Name of affiliations or associations</td>
</tr>
<tr>
<td>Credentials</td>
<td>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.</td>
</tr>
<tr>
<td>DateIssued</td>
<td>The date when this credential, license or certificate was issued</td>
</tr>
<tr>
<td>ExpirationDate</td>
<td>Expiration date for this license or membership</td>
</tr>
<tr>
<td>IssuerName</td>
<td>Name for the issuing organization for the rating or credential</td>
</tr>
<tr>
<td>IssuerUri</td>
<td>the URI that represent the issuing organization.</td>
</tr>
</tbody>
</table>

---  ===== Element Declarations =====  ---

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<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 String format, such as Good, Fair, Average, etc.</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. 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 String format, such as Good, Fair, Average, etc.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xsd:element name="RatingDescription" type="RatingDescriptionType">
  <xsd:annotation>
    <xsd:documentation>Rating description for the rating where the rating can be represented in 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>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 to.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

<xs:complexType name="RatingExtension">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:attribute name="optional" type="xsd:boolean" use="optional" default="true"/>
  </xsd:choice>
</xsd:complexType>

<xs:complexType name="CredentialClassType">
  <xsd:documentation>Complex type for membership classification</xsd:documentation>
</xs:complexType>

<xs:complexType name="CredentialDateType">
  <xsd:documentation>Complex type for the date on this credential</xsd:documentation>
</xs:complexType>
<xsd:sequence>
  <xsd:element ref="DateIssued" minOccurs="0"/>
  <xsd:annotation>
    <xsd:documentation>The date when this credential, license or certificate is
issued</xsd:documentation>
  </xsd:annotation>
</xsd:element>
</xsd:complexType>
<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:annotation>
      <xsd:documentation>Complex type for one credential or association</xsd:documentation>
    </xsd:annotation>
    <xsd:element ref="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 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 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:element name="DateIssuedType">
      <xsd:annotation>
        <xsd:documentation>Complex type of the date when this certificate or license is
issued</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
Credentials 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.

References

The URI that represent this rating issuer organization.

The URI that represent the issuer organization.

Name for the issuing organization for this rating or credential.
<xsd:complexType>
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="expired" type="xsd:boolean" use="optional" default="false"/>
      <xsd:attribute name="processor" type="xsd:string" use="optional"/>
      <xsd:attribute name="processing" type="xsd:string" use="optional"/>
      <xsd:attribute name="use" type="xsd:string" use="optional"/>
      <xsd:attribute name="version" type="xsd:string" use="optional"/>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="LicenseType">
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="issue" type="xsd:string" use="optional"/>
      <xsd:attribute name="registration" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationNumber" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationType" type="xsd:string" use="optional"/>
      <xsd:attribute name="status" type="xsd:string" use="optional"/>
      <xsd:attribute name="title" type="xsd:string" use="optional"/>
      <xsd:attribute name="uri" type="xsd:string" use="optional"/>
      <xsd:attribute name="version" type="xsd:string" use="optional"/>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="ListOfRatingType">
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="issue" type="xsd:string" use="optional"/>
      <xsd:attribute name="registration" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationNumber" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationType" type="xsd:string" use="optional"/>
      <xsd:attribute name="status" type="xsd:string" use="optional"/>
      <xsd:attribute name="title" type="xsd:string" use="optional"/>
      <xsd:attribute name="uri" type="xsd:string" use="optional"/>
      <xsd:attribute name="version" type="xsd:string" use="optional"/>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="RatingDescriptionType">
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="issue" type="xsd:string" use="optional"/>
      <xsd:attribute name="registration" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationNumber" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationType" type="xsd:string" use="optional"/>
      <xsd:attribute name="status" type="xsd:string" use="optional"/>
      <xsd:attribute name="title" type="xsd:string" use="optional"/>
      <xsd:attribute name="uri" type="xsd:string" use="optional"/>
      <xsd:attribute name="version" type="xsd:string" use="optional"/>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="RatingDateType">
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="issue" type="xsd:string" use="optional"/>
      <xsd:attribute name="registration" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationNumber" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationType" type="xsd:string" use="optional"/>
      <xsd:attribute name="status" type="xsd:string" use="optional"/>
      <xsd:attribute name="title" type="xsd:string" use="optional"/>
      <xsd:attribute name="uri" type="xsd:string" use="optional"/>
      <xsd:attribute name="version" type="xsd:string" use="optional"/>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="RatingNumericType">
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="issue" type="xsd:string" use="optional"/>
      <xsd:attribute name="registration" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationNumber" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationType" type="xsd:string" use="optional"/>
      <xsd:attribute name="status" type="xsd:string" use="optional"/>
      <xsd:attribute name="title" type="xsd:string" use="optional"/>
      <xsd:attribute name="uri" type="xsd:string" use="optional"/>
      <xsd:attribute name="version" type="xsd:string" use="optional"/>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="RatingType">
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="issue" type="xsd:string" use="optional"/>
      <xsd:attribute name="registration" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationNumber" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationType" type="xsd:string" use="optional"/>
      <xsd:attribute name="status" type="xsd:string" use="optional"/>
      <xsd:attribute name="title" type="xsd:string" use="optional"/>
      <xsd:attribute name="uri" type="xsd:string" use="optional"/>
      <xsd:attribute name="version" type="xsd:string" use="optional"/>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:complexType name="ListofRatingType">
  <xsd:complexContent>
    <xsd:extension base="cbc:NameType">
      <xsd:attribute name="issue" type="xsd:string" use="optional"/>
      <xsd:attribute name="registration" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationNumber" type="xsd:string" use="optional"/>
      <xsd:attribute name="registrationType" type="xsd:string" use="optional"/>
      <xsd:attribute name="status" type="xsd:string" use="optional"/>
      <xsd:attribute name="title" type="xsd:string" use="optional"/>
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C. Non-Normative Text

None
## D. Revision History

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<th>Revision</th>
<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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<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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<td>WD04</td>
<td>06/08/2009</td>
<td>Szu Chang</td>
<td>Fixed Issue #I018</td>
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<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>
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<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>Changed NS and fixed URIs from CD02 to CD03</td>
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<td>TC approved, changed from WS09 to CD04</td>
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