

[draft-ietf-simple-rpids-01.txt](#)

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**RPIDS -- Rich Presence Information Data Format for Presence Based
on the Session Initiation Protocol (SIP)**

STATUS OF THIS MEMO

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Abstract

The Rich Presence Information Data Format for the Session Initiation Protocol (SIP) (RPIDS) adds elements to the Presence Information Data Format (PIDF) that provide additional information about the presentity and its contacts. This information can be translated into call routing behavior or be delivered to watchers. The information is designed so that much of it can be derived automatically, e.g., from calendar files or user activity.

1 Introduction

The PIDF definition [[1](#)] describes a basic presence information data format for exchanging presence information in CPIM-compliant systems. It consists of a <presence> root element, zero or more <tuple> elements carrying presence information, zero or more <note> elements and zero or more extension elements from other name spaces. Each tuple defines a basic status of either "open" or "closed".

This document provides additional status information for presentities and defines a Rich Presence Information Data Format for Presence Based on the Session Initiation Protocol (SIP) (RPIDS) to convey this information.

This extension has three main goals:

1. Provide rich presence indication that is at least as powerful as common commercial presence systems. Such feature-parity simplifies transition to CPIM-compliant systems, both in terms of user acceptance and protocol conversion.
2. Maintain backwards-compatibility with PIDF, so that PIDF-only watchers and gateways can continue to function properly, naturally without access to the functionality described here.

We make no assumptions how the information in the RPIDS is generated. Experience has shown that users are not always diligent about updating their presence status. Thus, we want to make it as easy as possible to derive RPIDS information from other information sources, such as calendars, the status of communication devices such as telephones, typing activity and physical presence detectors as commonly found in energy-management systems.

The information in a presence document can be generated by a single entity or can be composed from information published by multiple entities.

Many of the elements correspond to data commonly found in personal calendars. Thus, we attempted to align some of the extensions with the usage found in calendar formats such as iCal [[12](#)] and xCal [[13](#)], as noted below.

Note that PIDF documents and this extension can be used in two different contexts, namely by the presentity to publish its presence status and by the presence server to notify some set of watchers. The presence server MAY compose, translate or filter the published

presence state before delivering customized presence information to the watcher. For example, it may merge presence information from multiple PUAs, remove whole elements, translate values in elements or remove information from elements. Mechanisms that filter calls and other communications to the presentity can subscribe to this presence information just like a regular watcher and in turn generate automated rules, such as scripts [\[14\]](#), that govern the actual communications behavior of the presentity.

The flow diagram below illustrates this process.

```
presentity
|
--> publish
    |
    --> PA (filter)
        --> notification 1 to A, B, C
        --> notification 2 to D, E
        --> notification 3 to F
        --> notification 4 to script gen.
```

[2](#) RPIDS Features

Below, we summarize and motivate the major additional features that RPIDS adds to PIDF.

The PIDF definition does not clearly describe what a <tuple> represents. We add an <class> attribute ([Section 6.4](#)) that allows a presentity to label tuples in ways that make sense to the presentity, e.g., to group similar tuples by name.

While the PIDF definition describes which means of communications are available for a presentity, it does not describe the activity that the presentity is currently engaged in. The <activity> ([Section 6.2](#)) element adds this information.

The <idle> ([Section 6.7](#)) element indicates when the device was last used or simply whether it has been idle.

To help the watcher gauge the appropriateness of different types of communications, we indicate the type of place the user is currently in, via the <placetype> element ([Section 6.9](#)) and hint at the privacy available via <privacy>.

PIDF defines a <timestamp> element indicating the date and time of

the status change of a tuple. RPIDS adds a validity period for status values, <from> and <until>, as a hint how long the current status is likely to be valid ([Section 6.5](#) and [Section 6.13](#)).

Information about a tuple can be conveyed using the <card>, <info> and <icon> elements.

An important sub-case is that a presentity is interruptible only under unusual circumstances, after mediation by some, typically human, authority such as a secretary or supervisor. We allow the presentity to convey that certain contact addresses actually belong to a different person, presumably one that can either interrupt the presentity or otherwise assist. The <relationship> ([Section 6.11](#)) element allows to indicate that a particular tuple refers to a different principal or presentity.

The PIDF document format [[1](#)] defines a <contact> element which may appear once inside every <tuple> element. The content of the <contact> element encodes the CONTACT ADDRESS and CONTACT MEANS as defined in [[3](#)]. The <contact> element is defined to be an URI. This URI can be of any URI scheme. Some URI schemes uniquely identify the application the tuple intends to describe (e.g., "im" URIs). However, this is not the case for all schemes. For example, a SIP URI can represent different kinds of applications, including voice, video, or messaging. If it is not known by other means, it can be hard for applications processing the presence document containing only SIP URI contact addresses to know what particular application the tuple intends to describe. Also, watchers receiving presence information would benefit for getting more descriptive information about what particular communication means or applications are supported by the presentity.

We generally assume that the presence element describes a single human being or a group of humans. However, this is not required. A presentity can also be a "bot" or "avatar", for example.

Note that this document does not define a new content type. Rather, it inherits the content type from [[1](#)], namely application/cpim-pidf+xml

3 Scope

This extension does not replace media negotiation mechanisms defined for SIP (e.g. SDP [[4](#)]), therefore media negotiation (e.g., choice of voice and video codecs) MUST be performed according to [[5](#)]. This extension is only aimed to give the watchers hints about the presentity's preferences, willingness and capabilities to communicate before watchers initiate SIP-based communication with the presentity.

4 Terminology and Conventions

This memo makes use of the vocabulary defined in the IMPP Model document [3]. Terms such as CLOSED, INSTANT MESSAGE, OPEN, PRESENCE SERVICE, PRESENTITY, WATCHER, and WATCHER USER AGENT in the memo are used in the same meaning as defined therein. The key words MUST, MUSTNOT, REQUIRED, SHOULD, SHOULDNOT, RECOMMENDED, MAY, and OPTIONAL in this document are to be interpreted as described in BCP XX, [RFC 2119](#) [6].

5 The Meaning of "open" and "closed"

PIDF describes the basic status values of "open" or "closed" only as "have meanings of general availability for other communications means". We define "closed" in our context as meaning that communication to the contact address will in all likelihood not succeed, is undesired or will not reach the intended party. (For example, a presentity may include a hotel phone number as a contact. After check-out, the phone number will still ring, but reach the chambermaid or the next guest. Thus, it would be declared "closed".) For "pres" contacts, "closed" means that no presence status information is available.

The interpretation of "closed" was chosen since there is no other status value to indicate that a communications address is not reachable. Omitting the <contact> element does not work since it would confuse watchers that have not previously seen an "open" status for the same contact address.

6 RPIDS Elements

6.1 Introduction

Below, we describe the RPIDS elements in detail. <activity>, <card> <category>, <class>, <from>, <icon> <idle> <info> <label>, <placetype>, <privacy>, <relationship>, <timed-status>, <until> extend <status>.

In general, it is highly unlikely that a presentity will publish or announce all of these elements at the same time. Rather, these elements were chosen to give the presentity maximum flexibility in deriving this information from existing sources, such as calendaring tools, device activity sensors or location trackers, as well as to manually configure this information.

The namespace URI for elements defined by this specification is a URN

[7], using the namespace identifier 'ietf' defined by [8] and extended by [9]:

urn:ietf:params:xml:ns:sip-rpids

6.2 Activity Element

The <activity> indication describes what the presentity is currently doing. This can be quite helpful to the watcher in judging how appropriate a communication attempt is and which means of communications is most likely to succeed and not annoy the presentity. The activity indications correspond roughly to the category field in calendar entries, such as Section 4.8.1.2 of [RFC 2445](#) [9].

Use of an enumerated, but extensible, set of activity categories simplifies automated generation and processing of presence information. The categories can be readily selected from a drop-down list by the user or translated from the corresponding activity field in calendars. Recipients of this information can render at least a subset as icons, automatically translate them into different languages or convert them to sound "jingles" and speech, or use them to generate call processing rules.

An activity indication consists of one or more values drawn from the list below, any other token string or IANA-registered values ([Section 10](#)). Communities of interest such as a profession or an organization may define additional activity labels for their internal use.

On-the-phone: The presentity is talking on the telephone. This activity is included since it can often be derived automatically.

Away: The presentity is physically away from the device location. This activity was included since it can often be derived automatically from security systems, energy management systems or entry badge systems.

Appointment: The presentity has a calendar appointment.

Holiday: This is a scheduled national or local holiday. This information can typically be derived automatically from calendars.

Meal: The presentity is scheduled for a meal. This activity category can often be generated automatically from a calendar.

Meeting: This activity category can often be generated automatically from a calendar.

Steering: The presentity is controlling a vehicle, ship or plane.

In-transit: The presentity is riding in a vehicle, such as a car, but not steering.

Travel: The presentity is on a business or personal trip, but not necessarily in-transit. This category can often be generated automatically from a calendar.

Vacation: This activity category can often be generated automatically from a calendar.

Sleeping: This activity category can often be generated automatically from a calendar or local time information.

Busy: User is busy, without further details. This activity category would typically be indicated manually.

Permant-absence: Presentity will not return for the foreseeable future, e.g., because it is no longer working for the company.

[6.3](#) Card

The <card> element provides a URI pointing to a business card, e.g., in LDIF or vCard format.

[6.4](#) Class

The 'class' attribute describes the class of the tuple. Multiple tuples can have the same class name within a presence document. The naming of classes is left to the presentity. The presentity can use this information to group similar tuples or to convey information that the presence agent can use for filtering.

The class description is similar in spirit to the 'class' attribute of XML elements, used to support Cascading Style Sheets.

[6.5](#) From Element

The <from> element indicates how long the current status has been valid, expressed as an absolute time.

[6.6](#) Icon

The <icon> element provides a URI pointing to an image (icon) representing the tuple. The watcher MAY use this information to represent the tuple.

[6.7](#) Idle Element

The <idle> records the absolute time and date the communication device was last used. This provides an indication as to how likely a user is to answer the device. A device that has not been used in a while may still be OPEN, but a watcher may choose to first contact a device that is both OPEN and not marked as idle.

The <idle> element can be empty if the presentity wants to indicate that the device has not been used for a while, but does not want to reveal the precise duration:

```
<idle/>
```

The <idle> SHOULD be included in the presence document if the idle time exceeds a user-setable threshold, with a RECOMMENDED default value of 10 minutes. Configuration MUST include the option to omit the timestamp.

[6.8](#) Info

The <info> element provides a URI pointing to general information about the tuple, e.g., a web page.

[6.9](#) Type of Place Element

The <placetype> element describes the type of place the presentity is currently at. This offers the watcher an indication what kind of communication is likely to be appropriate. We define an initial set of values below:

home: The presentity is in a private or residential setting, not necessarily the personal residence of the presentity, e.g., including hotel or a friend's home.

office: The presentity is in a business setting, such as an office.

public: The presentity is in a public area such as a shopping mall, street, park, public building, train station, airport or in public conveyance such as a bus, train, plane or ship.

This list can be augmented by free-text values or additional IANA-registered values ([Section 10](#)).

The placetype element can be used by logic executing on the watcher or by a composer to filter, sort and label tuples. For example, a composer may have rules that limit the publication of "home" tuples to a subset of the watchers.

[6.10](#) Privacy Element

The <privacy> element indicates whether third parties may be able to hear or view parts of the communication.

public: Others may be able to see or hear the communications.

private: Inappropriate individuals are not likely to see or hear the communications.

quiet: The presentity is in a place such as a library, restaurant, place-of-worship, or theater that discourages noise, conversation and other distractions.

This indication is not limited to voice communications. For example, a presentity might label her privacy as "quiet" when giving a talk, since it would be inappropriate if an instant message popped up on the laptop screen that is being projected for the audience.

The placetype element can be used by logic executing on the watcher or by a composer to filter, sort and label tuples. For example, a composer may have rules that limit the publication of tuples labeled as "quiet" to a select subset of the watchers.

[6.11](#) Relationship Element

The <relationship> element designates the type of relationship an alternate contact has with the presentity. This element is provided only if the tuple refers to somebody other than the presentity.

Relationship values include "family", "associate" (e.g., for a colleague), "assistant", "supervisor". Other free-text values and additional IANA-registered values ([Section 10](#)) can be used as well.

The <contact> element for tuples labeled with a relationship can contain either a communication URI such as "im", "sip"/"sips", "h323", "tel" or "mailto", or a presence URI, such as "pres" or "sip".

[6.12](#) Timed Status Element

The <timed-status> element describes status information that is either no longer valid or covers some future timeperiod.

Timed status cannot be expressed with <tuples> elements where the period between <status> since PIDF parsers would not be able to distinguish current from future or past information. It is occasionally useful to represent past information since it may be the only known presence information; it may give watchers an indication of the current status. For example, indicating that the presentity was at a meeting that ended an hour ago indicates that the presentity is likely in transit at the current time.

[6.13](#) Until Element

The <until> element indicates how long the current basic status (open or closed) is likely to be valid, expressed as an absolute time.

This indication allows the watcher to make better decisions. For example, if a presentity indicates that it is likely to be unreachable for an extended period of time, the watcher may decide to request assistance from somebody else, rather than waiting for the presentity to return.

Often, the duration of the status information is not known precisely. Thus, it is helpful to indicate the precision, here expressed in seconds. For example, an absence of "a few hours" can easily be expressed as a time some hours into the future, with a precision of 7200 seconds.

An absolute time was chosen to simplify integration with calendaring applications. This combination appears to be semantically cleaner than enumerating various measurement units such as "months", "weeks", "days" or "hours".

Both the <from> and <until> information might be derived from calendar information, reflecting the start and end time of an activity. (Examples include the Date Time Start and Date Time End properties of [RFC 2445](#). For simplicity, RPIDS only supports single events, without repetition.)

Any statements such as anticipated validity are not historical facts and are forward-looking statements that involve risks and uncertainties; actual results may differ from the forward-looking statements.

[7](#) Examples

[7.1](#) Presentity with Capabilities

```
<?xml version="1.0" encoding="UTF-8"?>
  <presence xmlns="urn:ietf:params:xml:ns:cpim-pidf"
    xmlns:cap="urn:ietf:params:xml:ns:sip-prescaps"
    xmlns:ep="urn:ietf:params:xml:ns:sip-rpids"
    entity="pres:someone@example.com">

    <note>I'm in a boring meeting</note>

    <tuple id="7c8dqui">
      <status>
        <basic>open</basic>
        <contact>sip:secretary@example.com</contact>
        <ep:relationship>assistant</ep:relationship>
      </status>
      <note>My secretary</note>
    </tuple>

    <tuple id="18x765">
      <status>
        <basic>open</basic>
        <ep:category>meeting</ep:category>
        <ep:placetype>office</ep:placetype>
        <ep:privacy>quiet</ep:privacy>
        <ep:activity>inactive</ep:activity>
        <ep:idle>2003-01-27T10:43:00Z</ep:idle>
        <ep:until>2003-01-27T17:30:00Z</ep:until>
      </status>
      <contact priority="0.8">sip:someone@example.com</contact>
      <timestamp>2001-10-27T16:49:29Z</timestamp>

      <ep:timed-status>
        <basic>closed</basic>
```



```
      <ep:from>2003-01-27T17:30:00Z</ep:from>
      <ep:until>2003-01-27T19:30:00Z</ep:until>
    </ep:timed-status>
  </tuple>

  <tuple id="35bs9r" class="cellphone">
    <status>
      <basic>open</basic>
    </status>
    <contact priority="0.8">im:someone@mobilecarrier.net</contact>
    <timestamp>2001-10-27T16:49:29Z</timestamp>
  </tuple>

  <tuple id="8eg92n" class="email">
    <status>
      <basic>open</basic>
    </status>
    <contact priority="1.0">mailto:someone@example.com</contact>
  </tuple>
</presence>
```

8 XML Schema Definitions

```
<?xml version="1.0" encoding="UTF-8"?>
  <xs:schema targetNamespace="urn:ietf:params:xml:ns:pidf:status"
    xmlns:tns="urn:ietf:params:xml:ns:pidf:status"
    xmlns:pidf="urn:ietf:params:xml:ns:cpim-pidf"
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    elementFormDefault="qualified"
    attributeFormDefault="unqualified">

    <!-- This import brings in the XML language attribute xml:lang-->
    <xs:import namespace="http://www.w3.org/XML/1998/namespace"
      schemaLocation="http://www.w3.org/2001/xml.xsd"/>

    <redefine
      schemaLocation="urn:ietf:params:xml:ns:cpim-pidf">

      <!-- redefinition of tuple -->
      <complexType name="tuple">
        <complexContent>
          <extension base="pidf:tuple">
            <xsd:attribute name="class" type="xsd:token"/>
          </extension>
        </complexContent>
      </complexType>
```



```
</complexType>
</redefine>

<xs:element name="placetype" type="xs:token"/>
<xs:element name="privacy" type="tns:privacy"/>
<xs:element name="activity" type="xs:token"/>
<xs:element name="relationship" type="xs:token"/>
<xs:element name="from" type="tns:fromuntil">
<xs:element name="until" type="tns:fromuntil">
<xs:element name="idle" type="xs:dateTime">
<xs:element name="icon" type="xs:anyURI">
<xs:element name="card" type="xs:anyURI">
<xs:element name="info" type="xs:anyURI">

<xs:element name="timed-status" type="tns:timed-status">

<xs:simpleType name="privacy">
  <xs:restriction base="xs:string">
    <xs:enumeration value="private"/>
    <xs:enumeration value="public"/>
    <xs:enumeration value="quiet"/>
  </xs:restriction>
</xs:simpleType>

<xs:complexType name="fromuntil">
  <xs:simpleContent>
    <xs:extension base="xs:dateTime">
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>

<xs:complexType name="timed-status">
  <xs:sequence>
    <xs:element name="basic" type="pidf:basic" minOccurs="0"/>
    <xs:element name="from" type="tns:fromuntil">
    <xs:element name="until" type="tns:fromuntil">
    <xs:element name="note" type="pidf:note">
    <xs:any namespace="##other" processContents="lax" minOccurs="0"
      maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
```

9 Security Considerations

The security considerations in [1] apply, as well as [11]. Compared to PIDF, this presence document format reveals additional information

that can be highly sensitive. Beyond traditional security measures to protect confidentiality and integrity, systems should offer a means to selectively reveal information to particular watchers and to inspect the information that is being published, particularly if it is generated automatically from other sources, such as calendars or sensors.

Like any information retrieved by reference, the information provided in the <card>, <icon> and <info> elements may refer to data types that expose the watcher to security risks.

10 IANA Considerations

This document calls for IANA to:

- o register two new XML namespace URNs per [9];
- o establish registry for activity categories ([Section 6.2](#)), place types ([Section 6.9](#)), and relationships ([Section 6.11](#)).

Note that this document does not need a new content type. It inherits the content type from [1], namely application/cpim-pidf+xml

10.1 URN Sub-Namespace Registration for

URI: urn:ietf:params:xml:ns:sip-rpids

Description: This is the XML namespace for XML elements defined by RFCXXXX to describe a rich presence information extension for the CPIM-PIDF presence document format in the

application/cpim-pidf+xml

content type.

Registrant Contact: IETF, SIMPLE working group,
<simple@ietf.org>,
Henning Schulzrinne, <hgs@cs.columbia.edu>

XML:

BEGIN

```
<?xml version="1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML Basic 1.0//EN"
"http://www.w3.org/TR/xhtml1-basic/xhtml1-basic10.dtd">
<html xmlns="http://www.w3.org/1999/xhtml
<head>
  <meta http-equiv="content-type"
```



```

        content="text/html;charset=iso-8859-1"/>
        <title>RPIDS -- Rich Presence Information Data Format
for Presence Based on the Session
Initiation Protocol (SIP)</title>
    </head>
    <body>
        <h1>Namespace for SIMPLE rich presence extension</h1>
        <h2>application/cpim-pidf+xml</h2>
        <p>See <a href="[[[URL of published RFC]]]">RFCXXXX</a>.</
p>
    </body>
</html>
END

```

10.2 URN Sub-Namespace Registration for

URI: urn:ietf:params:xml:ns:sip-prescaps

Description: This is the XML namespace for XML elements defined by RFCXXXX to describe a capabilities presence information extension for the CPIM-PIDF presence document format in the

application/cpim-pidf+xml

Registrant Contact: IETF, SIMPLE working group,
 <simple@ietf.org>,
 Henning Schulzrinne, <hgs@cs.columbia.edu>

XML:

```

BEGIN
<?xml version="1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML Basic 1.0//EN"
"http://www.w3.org/TR/xhtml1-basic/xhtml1-basic10.dtd">
<html xmlns="http://www.w3.org/1999/xhtml
<head>
    <meta http-equiv="content-type"
    content="text/html;charset=iso-8859-1"/>
    <title>SIMPLE PIDF presence capabilities extension</title>
</head>
<body>
    <h1>Namespace for SIMPLE presence capabilities extension</
h1>
    <h2>application/cpim-pidf+xml</h2>
    <p>See <a href="[[[URL of published RFC]]]">RFCXXXX</a>.</
p>
    </body>

```

</html>
END

10.3 Place Type, Device Type, Categories, Relationships

This document creates new IANA registries for categories, device types, place types and relationships. All are XML tokens. Registered tokens must be documented at the time of registration, as most descriptions are expected to be brief.

The SIMPLE working group, or, if no longer available, the SIP working group should be consulted prior to registration.

11 Acknowledgements

The document reflects the discussion on the SIMPLE mailing list, with contributions from many individuals. Markus Isomaki, Hisham Khartabil, Jon Peterson and Brian Rosen provided detailed comments and suggestions. The notion of external references in the <card>, <icon> and <info> elements is an evolution of the BINPIDF proposal by Khartabil et al.

12 References

13 Normative References

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