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**RPID: Rich Presence Extensions to the Presence Information Data Format
(PIDF)
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Abstract

The Presence Information Data Format (PIDF) defines a basic format for representing presence information for a presentity. That format defines a textual note, an indication of availability (open or

closed) and a Universal Resource Identifier (URI) for communication. The Rich Presence Information Data format (RPID) described here is an extension that adds optional elements to the Presence Information Data Format (PIDF). These extensions provide additional information about the presentity and its contacts. The information is designed so that much of it can be derived automatically, e.g., from calendar files or user activity.

This extension includes information about what the person is doing, a grouping identifier for a tuple, when a service or device was last used, the type of place a person is in, what media communications might remain private, the relationship of a service tuple to another presentity, the person's mood, the time zone it is located in, the type of service it offers, an icon reflecting the presentity's status and the overall role of the presentity.

These extensions include presence information for persons, services (tuples) and devices.

Table of Contents

1.	Introduction	4
2.	Terminology and Conventions	5
3.	RPID Elements	6
3.1	Overview	6
3.2	Activities Element	8
3.3	Class Element	10
3.4	Device Identifier	10
3.5	Mood Element	11
3.6	Place-is Element	13
3.7	Place-type Element	14
3.8	Privacy Element	16
3.9	Relationship Element	17
3.10	Service Class	18
3.11	Sphere Element	19
3.12	Status-Icon Element	19
3.13	Time Offset	20
3.14	User-Input Element	20
4.	Example	21
5.	XML Schema Definitions	23
5.1	urn:ietf:params:xml:ns:pidf:rpid	23
6.	Extending RPID	34
7.	IANA Considerations	34
7.1	URN Sub-Namespace Registration for 'urn:ietf:params:xml:ns:pidf:rpid'	34
7.2	Schema Registration for Schema urn:ietf:params:xml:ns:pidf:status:rpid'	35
8.	Security Considerations	35
9.	References	36
9.1	Normative References	36
9.2	Informative References	36
	Authors' Addresses	37
A.	Acknowledgements	38
	Intellectual Property and Copyright Statements	39

1. Introduction

The Presence Information Data Format (PIDF) definition [8] describes a basic presence information data format, encoded as an Extensible Markup Language (XML) document, for exchanging presence information in systems compliant with the common model for presence and instant messaging [5]. It consists of a <presence> root element, zero or more <tuple> elements carrying presence information including a Universal Resource Identifier (URI) for communication, 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".

However, it is frequently useful to convey additional information about a user that needs to be interpreted by an automata, and is therefore not appropriate to be placed in the <note> element of the PIDF document. Therefore, this specification defines extensions to the PIDF document format for conveying richer presence information. Generally, the extensions have been chosen to provide features common in existing presence systems at the time of writing, in addition to elements that could readily be derived automatically from existing sources of presence, such as calendaring systems or communication devices, or sources describing the user's current physical environment.

The presence data model [12] defines the concepts of service, device, and person as the data elements that are used to model the state of a presentity. Services are encoded using the <tuple> element, defined in PIDF; devices and persons are represented by the <device> and <person> XML elements, respectively, defined in the data model [12]. However, neither PIDF nor the data model define presence attributes beyond the <basic> status element.

This specification defines additional presence attributes to describe person, service and device data elements, summarized as "Rich Presence Information Data format for presence" (RPID). These attributes are specified by XML elements which extend the PIDF <tuple> element and the <device> and <person> elements defined in the data model.

This extension has two main goals:

1. Provide rich presence information 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 RPID elements 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 RPID information from other information sources, such as personal calendars, the status of communication devices such as telephones, typing activity and physical presence detectors as commonly found in energy-management systems.

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 [[10](#)].

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

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 presence user agents, 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 [[11](#)], that govern the actual communications behavior of the presentity. Details are described in the data model document.

Since RPID is a PIDF XML document, it also uses the content type `application/pidf+xml`.

2. Terminology and Conventions

This memo makes use of the vocabulary defined in the IMPP Model document [[5](#)]. 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, MUST NOT, REQUIRED, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL in this document are to be interpreted as described in [BCP 14](#), [RFC 2119](#) [[1](#)].

3. RPID Elements

3.1 Overview

Some of the RPID elements describe services, some devices, and some the person. As such, they either extend <tuple>, <device> or <person>, respectively. Below, we summarize the RPID elements. The next sections will then provide more detailed descriptions.

activities: The <activities> status element enumerates what the person is doing.

class: An identifier that groups similar person elements, devices or services.

device-id: A device identifier in a tuple references a <device> element, indicating that this device contributes to the service described by the tuple.

mood: The <mood> status element indicates the mood of the person.

place-is: The <place-is> status elements reports on the properties of the place the presentity is currently at, such as the levels of light and noise.

place-type: The <place-type> status elements reports the type of place the person is located in, such as 'classroom' or 'home'.

privacy: The <privacy> element distinguishes whether the communication service is likely to be observable by other parties.

relationship: When a service is likely to reach a user besides the person associated with the presentity, the relationship indicates how that user relates to the person.

service-class: The <service-class> element describes whether the service is delivered electronically, is a postal or delivery service or describes in-person communications.

sphere: The <sphere> element characterizes the overall current role of the presentity.

status-icon: The <status-icon> element depicts the current status of the person or service.

time-offset: The <time-offset> status element quantifies the time zone the person is in, expressed as the number of minutes away from UTC.

user-input: The <user-input> element records the user-input or usage state of the service or device, based on human user input.

The usage of these elements within the <person>, <tuple> and <device> elements is shown in columns 4 through 6 of Table 1. An 'x' in the respective column indicates that the RPID element MAY appear as a child of that element.

Element	From/until?	Notes?	<person>	<tuple>	<device>
<activities>	x	x	x		
<class>			x	x	x
<device-id>				x	
<mood>	x	x	x		
<place-is>	x	x	x		
<place-type>	x	x	x		
<privacy>	x	x	x	x	
<relationships>		x		x	
<service-class>		x		x	
<sphere>	x		x		
<status-icon>	x		x	x	
<time-offsets>	x		x		
<user-input>			x	x	x

Table 1

In general, it is 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. In either case, there is no guarantee that the information is accurate, as users forget to update calendars or may not always adjust the presence information manually.

The namespace URIs for these elements defined by this specification are URNs [2], using the namespace identifier 'ietf' defined by [4] and extended by [6]:

```
urn:ietf:params:xml:ns:pidf:rpidd
```

The elements marked with the value 'x' in column 2 of Table Table 1 MAY be qualified with the 'from' and 'until' attributes to describe the absolute time when the element assumed this value and the absolute time until which is element is expected to be valid. Note

that there can be multiple elements of the same type, whose time ranges SHOULD NOT overlap.

Elements MAY contain an 'id' attribute that allows to uniquely reference the element.

Enumerations can be extended by elements from other namespaces. The <activities>, <mood> and <place-type> elements can also take <other> elements containing text, for custom free-text values specific to an application.

All elements described in this document are optional within PIDF documents.

3.2 Activities Element

The <activities> element describes what the person is currently doing, expressed as an enumeration of activity-describing elements. A person can be engaged in multiple activities at the same time, e.g., traveling and having a meal. The <activities> element 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 person. The activity indications correspond roughly to the category field in calendar entries, such as [Section 4.8.1.2 of RFC 2445 \[10\]](#).

An activities enumeration consists of one or more elements using elements drawn from the list below, a string enclosed in the <other> element or IANA-registered values from other namespaces ([Section 7](#)).

If a person publishes an activity of "permanent-absence", it is likely that all services will report a status of CLOSED. In general, services MAY advertise either service status for any activity value.

Activities such as <appointment>, <breakfast>, <dinner>, <holiday>, <lunch>, <meal>, <meeting>, <performance>, <travel>, or <vacation> can often be derived from calendar information.

appointment: The person has a calendar appointment, without specifying exactly of what type. This activity is indicated if more detailed information is not available or the person chooses not to reveal more information.

away: The person is physically away from all interactive communication devices. This activity element was included since it can often be derived automatically from security systems, energy management systems or entry badge systems. While this activity would typically be associated with a status of CLOSED across all services, a person may declare itself away to

discourage communication, but indicate that it still can be reached if needed. However, communication attempts might reach an answering service, for example.

breakfast: The person is eating the first meal of the day, usually eaten in the morning.

busy: The person is busy, without further details. While this activity would typically be associated with a status of CLOSED across all services, a person may declare itself busy to discourage communication, but indicate that it still can be reached if needed.

dinner: The person is having his or her main meal of the day, eaten in the evening or at midday.

holiday: This is a scheduled national or local holiday.

in-transit: The person is riding in a vehicle, such as a car, but not steering. The <place-type> element provides more specific information about the type of conveyance the person is using.

looking-for-work: The presentity is looking for (paid) work.

lunch: The person is eating his or her midday meal.

meal: The person is scheduled for a meal, without specifying whether it is breakfast, lunch or dinner, or some other meal.

meeting: The person is in an assembly or gathering of people, as for a business, social, or religious purpose. A meeting is a sub-class of an appointment.

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

other: The person is engaged in an activity with no defined representation as an <activities> element. The enclosed string describes the activity in plain text.

performance: A performance is a sub-class of an appointment and includes musical, theatrical and cinematic performances as well as lectures. It is distinguished from a meeting by the fact that the person may either be lecturing or be in the audience, with a potentially large number of other people, making interruptions particularly noticeable.

permanent-absence: The person will not return for the foreseeable future, e.g., because it is no longer working for the company. This activity is associated with a status of CLOSED across all services.

playing: The person is occupying himself or herself in amusement, sport, or other recreation.

presentation: The person is giving a presentation, lecture, or participating in a formal round-table discussion.

shopping: The person is visiting stores in search of goods or services.

sleeping: This activity category can often be generated automatically from a calendar, local time information or biometric data.

spectator: The person is observing an event, such as a sports event.

steering: The person is controlling a vehicle, ship or plane.

travel: The person is on a business or personal trip, but not necessarily in-transit.

tv: The person is watching television.

unknown: The activity of the person is unknown. This element is generally not used together with other activities.

vacation: A period of time devoted to pleasure, rest, or relaxation.

working: The presentity is engaged in, typically paid, labor, as part of a profession or job.

worship: The presentity is participating in religious rites.

The <activities> element MAY be qualified with the 'since' and 'until' attributes as described in [Section 3](#).

Example:

```
<activities>
  <note>Enjoying the morning paper</note>
  <vacation/>
  <breakfast/>
  <other>reading</other>
</activities>
```

[3.3](#) Class Element

The <class> element describes the class of the service, device or person. Multiple elements can have the same class name within a presence document, but each person, service or device can only have one class label. The naming of classes is left to the presentity. The presentity can use this information to group similar services, devices or person elements or to convey information that the presence agent can use for filtering or authorization. This information is not generally presented to the watcher user interface.

The <class> element MUST NOT be qualified with the 'from' and 'until' attributes as described in [Section 3](#).

[3.4](#) Device Identifier

The <deviceId> element in the <tuple> element references the device that provides a particular service. One service can be provided by

multiple devices, so that each service tuple may contain zero or more <deviceID> elements. There is no significance in the order of these elements.

The <deviceID> element MUST be a URN. It is only used for identification and matching and conveys no further substantive information. The choice of URN is beyond the scope of this document. Such URNs SHOULD remain the same for the same physical device across time even if the device is rebooted or acquires a different network address.

The <deviceID> element MUST NOT be qualified with the 'since' and 'until' attributes as described in [Section 3](#).

3.5 Mood Element

The <mood> element describes the mood of the presentity. They are enumerated chosen by the presentity. The mood itself is provided as the element name of a defined child element of the <mood> element (e.g., <happy/>); one such child element is REQUIRED. The user MAY also specify a natural-language description of, or reason for, the mood in the <text> child of the <mood> element, which is OPTIONAL. (This definition follows the Jabber Extension JEP-107.) It is RECOMMENDED that an implementation support the mood values proposed in Jabber Extension JEP-0107, which in turn are a superset of the Wireless Village [\[14\]](#) mood values and the values enumerated in the Affective Knowledge Representation that has been defined by Lisetti [\[13\]](#):

A mood enumeration consists of one or more elements using elements drawn from the list below, a string enclosed in the <other> element or IANA-registered values from other namespaces ([Section 7](#)).

The <activities> element MAY be qualified with the 'from' and 'until' attributes as described in [Section 3](#).

- afraid
- amazed
- angry
- annoyed
- anxious
- ashamed
- bored
- brave
- calm
- cold
- confused

contented
cranky
curious
depressed
disappointed
disgusted
distracted
embarrassed
excited
flirtatious
frustrated
grumpy
guilty
happy
hot
humbled
humiliated
hungry
hurt
impressed
in_awe
in_love
indignant
interested
invincible
jealous
lonely
mean
moody
nervous
neutral
offended
other
playful
proud
relieved
remorseful
restless
sad
sarcastic
serious
shocked
shy
sick
sleepy
stressed

surprised
thirsty
unknown
worried

Example:

```
<mood>  
  <note>I'm ready for the bar BOF!</note>  
  <sleepy/>  
  <thirsty/>  
</mood>
```

3.6 Place-is Element

The `<place-is>` element describes properties of the place the person is currently at. This offers the watcher an indication what kind of communication is likely to be successful. Each major media type has its own set of attributes. Omitting the element indicates that the property is unknown.

For audio, we define the following attributes:

noisy: The person is in a place with a level of background noise that makes audio communications difficult.

ok: The environmental conditions are suitable for audio communications.

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

unknown: The place attributes for audio are unknown.

For video, we define the following attributes:

toobright: The person is in a bright place, sufficient for good rendering on video.

ok: The environmental conditions are suitable for video.

dark: The person is in a dark place, and thus the camera may not be able to capture a good image.

unknown: The place attributes for video are unknown.

For text, we define the following attributes:

uncomfortable: Typing or other text entry is uncomfortable.
inappropriate: Typing or other text entry is inappropriate, e.g.,
 since the user is in a vehicle or house of worship.
ok: The environmental conditions are suitable for text-based
 communications.
unknown: The place attributes for text are unknown.

This list can be augmented by free-text values in a note or
additional IANA-registered values ([Section 7](#)).

The <place-is> element contains other elements, e.g.,

```
<place-is>
  <audio>
    <noisy />
  </audio>
  <video>
    <dark />
  </video>
</place-is>
```

The <place-is> element MAY be qualified with the 'from' and 'until'
attributes as described in [Section 3](#).

[3.7](#) Place-type Element

The <place-type> element describes the type of place the person 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:

aircraft: The person is traveling in a plane, helicopter or balloon.
airport: The person is located in an airport, heliport or similar
 location.
arena: The person is in an enclosed area used for sports events.
automobile: The person is in a self-propelled passenger vehicle.
bank: The person is in a business establishment in which money is
 kept for saving or commercial purposes or is invested, supplied
 for loans, or exchanged.
bar: The person is in a bar or saloon.
bus: The person is traveling in a public or charter bus.
bus-station: The person is in a terminal that serves bus passengers;
 bus depot or bus terminal.

cafe: The person is in a cafe or coffeeshop.

classroom: The person is in an academic classroom or lecture hall.

club: The person is in a dance club or discotheque.

construction: The person is on a construction site.

convention-center: The person is in a convention center.

cycle: The person is riding a bicycle, motorcycle or similar vehicle.

government: The person is in a government building, such as those used by the legislative, executive, or judicial branches of governments, including court houses, police stations and military installations.

hospital: The person is in a hospital, hospice, medical clinic, mental institution, or doctor's office.

hotel: The person is in a hotel, motel, inn or other lodging establishment.

industrial: The person is in an industrial setting, such as a manufacturing floor or power plant.

library: The person is in a library or other public place which literary and artistic materials, such as books, periodicals, newspapers, pamphlets, prints, records, and tapes, are kept for reading, reference, or lending.

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

outdoors: The person is in a general outdoor area, such as a park or city streets.

other: The person is in a place without a <place-type> representation. The enclosed string describes the type of place.

parking: The person is in a parking lot or parking garage.

place-of-worship: A building where congregations gather for religious observances, such as a church, chapel, meetinghouse, mosque, shrine, synagogue, or temple.

prison: The person is in a prison, penitentiary, jail, brig, or criminal mental institution.

public: The person 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 general description encompasses the more precise descriptors "street", "public-transport", "aircraft", "ship", "bus", "train", "airport", "mall" and "outdoors".

public-transport: The person is using any form of public transport, including aircraft, bus, train or ship.

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

restaurant: The person is in a restaurant or other public dining establishment.

school: The person is in a school or university, but not necessarily in a classroom or library.

shopping-area: The person is frequenting a shopping mall or shopping area, i.e., a large, often enclosed shopping complex containing various stores, businesses, and restaurants usually accessible by common passageways.

stadium: The person is in a large, usually open structure for sports events, including a racetrack.

store: The person is located in a place where merchandise is offered for sale; a shop.

street: The person is walking in a street.

theater: The person is in a theater, lecture hall, auditorium, circus, class room, movie theater or similar facility designed for presentations, talks, plays, movies, music performances and other events involving an audience.

train: The person is traveling in a train, monorail, maglev, cable car or similar conveyance.

train-station: The person is in a terminal where trains load or unload passengers or goods; railway station, railroad station, railroad terminal, train depot.

truck: The person is in a truck, used primarily to carry goods rather than people.

underway: The person is in a land, water, or air craft which is under way (in motion).

unknown: The type of place is unknown.

warehouse: The person is in a place in which goods or merchandise are stored; a storehouse or self-storage facility.

water: The person is on water, such as an ocean, lake, river, canal or other waterway.

watercraft: The person is traveling in a boat or ship.

This list can be augmented by free-text values or additional IANA-registered values ([Section 7](#)).

The <place-type> element is a choice of elements, as in

```
<place-type>
  <street/>
</place-type>
```

The <place-type> element MAY be qualified with the 'from' and 'until' attributes as described in [Section 3](#).

3.8 Privacy Element

The <privacy> element indicates which types of communication third

parties in the vicinity of the presentity are unlikely to be able to intercept accidentally or intentionally. This does not in any way describe the privacy properties of the electronic communication channel, e.g., properties of the encryption algorithm or the network protocol used.

audio: Audio communication is likely only to be heard by the intended recipient.

text: Inappropriate individuals are not likely to see text communications.

unknown: This information is unknown.

video: Inappropriate individuals are not likely to see video communications.

The <privacy> 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 "private" to a select subset of the watchers.

The <privacy> element MAY be qualified with the 'from' and 'until' attributes as described in [Section 3](#).

Example:

```
<privacy>
  <text/>
  <audio/>
</privacy>
```

[3.9](#) Relationship Element

The <relationship> element extends <tuple> and 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", "friend", "associate" (e.g., for a colleague), "assistant", "supervisor", "self" and "unknown". The default is "self".

If a relationship is indicated, the URI in the <contact> element refers to the entity, such as the assistant, that has a relationship to the presentity, not the presentity itself.

Like tuples without a <relationship> qualifier, 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".

Example:

```
<relationship>
  <friend/>
</relationship>
```

3.10 Service Class

The <service-class> element extends <tuple> and designates the type of service offered.

electronic: Delivery of information by electronic means, i.e., without delivering physical objects. Examples include telephone, fax, email, instant messaging, and SMS.

postal: Delivery by the postal service, e.g., as a letter, parcel or postcard. Delivery could be to a post office box or central mail room rather than the presentity's office location, for example.

courier: Delivery by messenger, overnight delivery or courier. Courier-delivered messages are usually delivered to a receptionist rather than, say, a mailroom or receiving department.

freight: Delivery by freight carrier, typically of larger objects that are not sent by postal mail or courier. The recipient is often the shipping department or a loading dock.

in-person: Describes the coordinates for visits in person, as by a visitor, i.e., usually somebody's office or residence.

unknown: The type of service is unknown.

Electronic service is implied if omitted. The service types 'postal', 'courier', 'freight' and 'in-person' MUST NOT be used unless the contact URI is empty. Additional data elements defined elsewhere describe the physical service delivery address for the in-person, postal or delivery services. Such addresses might be specified in geospatial coordinates, civic addresses or some specialized address format, e.g., for interstellar addresses or a company-specific delivery system.

Example:

```
<service-class><postal/></service-class>
```


3.11 Sphere Element

The <sphere> element designates the current state and role that the person plays. For example, it might describe whether the person is in a work mode or at home or participating in activities related to some other organization such as the IETF or a church. This document does not define names for these spheres except for two common ones, "work" and "home", as well as "unknown".

Spheres allow the person to easily turn on or off certain rules that depend on what groups of people should be made aware of the person's status. For example, if the person is a Boy Scout leader, he might set the sphere to "scouting" and then have a rule set that allows other scout masters in his troop to see his presence status. As soon as he switches his status to "work" or "home" or some other sphere, the fellow scouts would lose access.

The <sphere> element MAY be qualified with the 'from' and 'until' attributes as described in [Section 3](#).

Example:

```
<sphere>
  <home/>
</sphere>
```

3.12 Status-Icon Element

The <status-icon> element includes a URI pointing to an image (icon) representing the current status of the person or service. The watcher MAY use this information to represent the status in a graphical user interface. Presentities SHOULD provide images of sizes and aspect ratios that are appropriate for rendering as an icon. Support for JPEG, PNG and GIF formats is RECOMMENDED.

Watchers resolving the URI MUST validate whether the local copy of the icon is current when receiving a notification, using the standard cache control mechanism in the URI-identified retrieval protocol.

Example:

```
<status-icon>http://www.example.com/playing.gif</status-icon>
```


3.13 Time Offset

The <time-offset> element describes the number of minutes of offset from UTC at the person's current location. A positive number indicates that the local time-of-day is ahead (i.e., east of) Universal Time, while a negative number indicates that the local time-of-day is behind (i.e., west of) Universal Time. Transitions into and out of daylight savings time may temporarily cause a difference between the true offset from UTC and the time offset element.

An optional attribute, description, can be used to describe the offset, e.g., by labeling the time zone. This description is meant for human consumption.

Publishers on mobile devices SHOULD NOT publish this information unless they know the time offset information to reflect the current location. (For example, many laptop users do not update their time zone when traveling.) Publishers SHOULD update the information whenever they discover that their UTC offset has changed.

Example:

```
<time-offset description="America/New_York">-300
</time-offset>
```

3.14 User-Input Element

The <user-input> element records the user-input or usage state of the service or device, based on human user input, e.g., keyboard, pointing device or voice. If contained in a <person> element, it summarize any user input activity across all services and devices operated by the presentity. The mechanism for such aggregation is beyond the scope of this document, but generally reflects the most recent user input across all devices and services. The element can assume one of two values, namely 'active' or 'idle', with an optional 'last-input' attribute that records when the last user input has been received. An optional 'idle-threshold' element records how long the presentity will wait before reporting the service or device to be idle, measured in seconds.

(A two-state model was chosen since it would otherwise be necessary to send repeated last-input updates during continuous activity.)

A service that wants to indicate user input activity sends a <user-

input> 'active' indication when the user has provided user input within a configurable interval of time, the idle-threshold. If the user ceases to provide input and the idle threshold has elapsed, the tuple is marked with a <user-input> 'idle' indication instead, optionally including the time of last activity in the 'last-input' attribute. An example is below:

```
<user-input idle-threshold="600"
  last-input="2004-10-21T13:20:00.000-05:00">idle</user-input>
```

Depending on device or service capabilities, user input may be detected only for a particular application, i.e., when the application has user focus or when a user has sent a message or placed a call, or can be based on user input across all applications running on one end system.

The <user-input> element may be used by a watcher, typically in combination with other data, to estimate how likely a user is to answer when contacting the service. A tuple that has not been used in a while may still be OPEN, but a watcher may choose to first contact a URI in a tuple that is both OPEN and has been used more recently.

The <user-input> attribute can be omitted 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, as in:

```
<user-input>idle</user-input>
```

Configuration MUST include the option to omit the 'last-input' attribute.

4. Example

The example below describes the presentity 'pres:someone@example.com', which has a SIP contact, 'sip:someone@example.com', representing a service. It also has a device contact, as an email box. The presentity is in a meeting, in a public office setting. The 'until' information indicates that he will be there until 5.30 pm local time. The presentity also has an assistant, sip:secretary@example.com, who happens to be available for communications.

```
<?xml version="1.0" encoding="UTF-8"?>
<presence xmlns="urn:ietf:params:xml:ns:pidf"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```



```
xmlns:dm="urn:ietf:params:xml:ns:pidf:data-model"
xmlns:rpid="urn:ietf:params:xml:ns:pidf:rpid"
  xsi:schemaLocation="urn:ietf:params:xml:ns:pidf pidf.xsd
urn:ietf:params:xml:ns:pidf:data-model data-model.xsd
urn:ietf:params:xml:ns:pidf:rpid rpid.xsd"
entity="pres:someone@example.com">

<tuple id="bs35r9">
  <status>
    <basic>open</basic>
  </status>
  <dm:deviceID>urn:device:0003ba4811e3</dm:deviceID>
  <rpid:relationship><rpid:self/></rpid:relationship>
  <rpid:service-class><rpid:electronic/></rpid:service-class>
  <contact priority="0.8">im:someone@mobile.example.net</contact>
  <note xml:lang="en">Don't Disturb Please!</note>
  <note xml:lang="fr">Ne derangez pas, s'il vous plait</note>
  <timestamp>2005-10-27T16:49:29Z</timestamp>
</tuple>

<tuple id="ty4658">
  <status>
    <basic>open</basic>
  </status>
  <rpid:relationship><rpid:assistant/></rpid:relationship>
  <contact priority="1.0">mailto:secretary@example.com</contact>
</tuple>

<tuple id="eg92n8">
  <status>
    <basic>open</basic>
  </status>
  <dm:deviceID>urn:x-mac:0003ba4811e3</dm:deviceID>
  <rpid:class>email</rpid:class>
  <rpid:service-class><rpid:electronic/></rpid:service-class>
  <rpid:status-icon>http://example.com/mail.png</rpid:status-icon>
  <contact priority="1.0">mailto:someone@example.com</contact>
</tuple>

<note>I'll be in Tokyo next week</note>

<dm:device id="pc147">
  <dm:deviceID>urn:device:0003ba4811e3</dm:deviceID>
  <dm:note>PC</dm:note>
  <rpid:user-input idle-threshold="600"
    last-input="2004-10-21T13:20:00-05:00">idle</rpid:user-input>
</dm:device>
```



```

<dm:person id="p1">
  <dm:timestamp>2005-05-30T16:09:44+05:00</dm:timestamp>
  <rpид:activities from="2005-05-30T12:00:00+05:00"
    until="2005-05-30T17:00:00+05:00">
    <rpид:note>Far away</rpид:note>
    <rpид:away/>
  </rpид:activities>
  <rpид:class>calendar</rpид:class>
  <rpид:mood>
    <rpид:angry/>
    <rpид:other>brooding</rpид:other>
  </rpид:mood>
  <rpид:place-is>
    <rpид:audio>
      <rpид:noisy/>
    </rpид:audio>
  </rpид:place-is>
  <rpид:place-type><rpид:residence/></rpид:place-type>
  <rpид:privacy><rpид:unknown/></rpид:privacy>
  <rpид:sphere>bowling league</rpид:sphere>
  <rpид:status-icon>http://example.com/play.gif</rpид:status-icon>
  <rpид:time-offset>-240</rpид:time-offset>
</dm:person>
</presence>

```

5. XML Schema Definitions

The RPID schema is shown below. Due to limitations in composing schemas, not all XML documents that validate against the schema below are semantically valid RPID documents. In particular, the schema allows each element to appear anywhere in PIDF or data-model elements; Table 1 restricts where these elements can appear for semantically valid RPID documents. Elements that do not have from/until parameters MUST NOT appear more than once in each <person>, <tuple> or <device>.

5.1 urn:ietf:params:xml:ns:pidf:rpид

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="urn:ietf:params:xml:ns:pidf:rpид"
  xmlns="urn:ietf:params:xml:ns:pidf:rpид"
  xmlns:dm="urn:ietf:params:xml:ns:pidf:data-model"

```



```
xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified"
attributeFormDefault="unqualified">

<xs:include schemaLocation="common-schema.xsd"/>

<xs:simpleType name="activeIdle">
  <xs:restriction base="xs:string">
    <xs:enumeration value="active"/>
    <xs:enumeration value="idle"/>
  </xs:restriction>
</xs:simpleType>

<xs:element name="activities">
  <xs:annotation>
    <xs:documentation>
      Describes what the person is currently doing, expressed as
      an enumeration of activity-describing elements. A person
      can be engaged in multiple activities at the same time,
      e.g., traveling and having a meal.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element name="note" type="Note_t" minOccurs="0"/>
      <xs:choice>
        <xs:element name="unknown" type="empty" minOccurs="0"/>
        <xs:sequence maxOccurs="unbounded">
          <xs:choice>
            <xs:element name="appointment"
              type="empty" />
            <xs:element name="away"
              type="empty" />
            <xs:element name="breakfast"
              type="empty" />
            <xs:element name="busy"
              type="empty" />
            <xs:element name="dinner"
              type="empty" />
            <xs:element name="holiday"
              type="empty" />
            <xs:element name="in-transit"
              type="empty" />
            <xs:element name="looking-for-work"
              type="empty" />
            <xs:element name="meal"
              type="empty" />
            <xs:element name="meeting"
```



```
        type="empty" />
      <xs:element name="on-the-phone"
        type="empty" />
      <xs:element name="performance"
        type="empty" />
      <xs:element name="permanent-absence"
        type="empty" />
      <xs:element name="playing"
        type="empty" />
      <xs:element name="presentation"
        type="empty" />
      <xs:element name="shopping"
        type="empty" />
      <xs:element name="sleeping"
        type="empty" />
      <xs:element name="spectator"
        type="empty" />
      <xs:element name="steering"
        type="empty" />
      <xs:element name="travel"
        type="empty" />
      <xs:element name="tv"
        type="empty" />
      <xs:element name="vacation"
        type="empty" />
      <xs:element name="working"
        type="empty" />
      <xs:element name="worship"
        type="empty" />
      <xs:element name="other"
        type="Note_t" />
      <xs:any namespace="##other"
        maxOccurs="unbounded" processContents="lax"/>
    </xs:choice>
  </xs:sequence>
</xs:choice>
</xs:sequence>
<xs:attributeGroup ref="fromUntil"/>
<xs:attribute name="id" type="xs:ID"/>
<xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>
</xs:element>

<xs:element name="class" type="xs:token">
  <xs:annotation>
    <xs:documentation>
      Describes the class of the service, device or person.
    </xs:documentation>
  </xs:annotation>
</xs:element>
```



```
</xs:annotation>
</xs:element>

<xs:element name="mood">
  <xs:annotation>
    <xs:documentation>
      Describes the mood of the presentity.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element name="note" type="Note_t" minOccurs="0"/>
      <xs:choice>
        <xs:element name="unknown" type="empty"/>
        <xs:sequence maxOccurs="unbounded">
          <xs:choice>
            <xs:element name="afraid"
              type="empty"/>
            <xs:element name="amazed"
              type="empty"/>
            <xs:element name="angry"
              type="empty"/>
            <xs:element name="annoyed"
              type="empty"/>
            <xs:element name="anxious"
              type="empty" />
            <xs:element name="ashamed"
              type="empty" />
            <xs:element name="bored"
              type="empty" />
            <xs:element name="brave"
              type="empty" />
            <xs:element name="calm"
              type="empty" />
            <xs:element name="cold"
              type="empty" />
            <xs:element name="confused"
              type="empty" />
            <xs:element name="contented"
              type="empty" />
            <xs:element name="cranky"
              type="empty" />
            <xs:element name="curious"
              type="empty" />
            <xs:element name="depressed"
              type="empty" />
            <xs:element name="disappointed"
              type="empty" />
          </xs:choice>
        </xs:sequence>
      </xs:choice>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```



```
<xs:element name="disgusted"
  type="empty" />
<xs:element name="distracted"
  type="empty" />
<xs:element name="embarrassed"
  type="empty" />
<xs:element name="excited"
  type="empty" />
<xs:element name="flirtatious"
  type="empty" />
<xs:element name="frustrated"
  type="empty" />
<xs:element name="grumpy"
  type="empty" />
<xs:element name="guilty"
  type="empty" />
<xs:element name="happy"
  type="empty" />
<xs:element name="hot"
  type="empty" />
<xs:element name="humbled"
  type="empty" />
<xs:element name="humiliated"
  type="empty" />
<xs:element name="hungry"
  type="empty" />
<xs:element name="hurt"
  type="empty" />
<xs:element name="impressed"
  type="empty" />
<xs:element name="in_awe"
  type="empty" />
<xs:element name="in_love"
  type="empty" />
<xs:element name="indignant"
  type="empty" />
<xs:element name="interested"
  type="empty" />
<xs:element name="invincible"
  type="empty" />
<xs:element name="jealous"
  type="empty" />
<xs:element name="lonely"
  type="empty" />
<xs:element name="mean"
  type="empty" />
<xs:element name="moody"
  type="empty" />
```



```
<xs:element name="nervous"
  type="empty" />
<xs:element name="neutral"
  type="empty" />
<xs:element name="offended"
  type="empty" />
<xs:element name="playful"
  type="empty" />
<xs:element name="proud"
  type="empty" />
<xs:element name="relieved"
  type="empty" />
<xs:element name="remorseful"
  type="empty" />
<xs:element name="restless"
  type="empty" />
<xs:element name="sad"
  type="empty" />
<xs:element name="sarcastic"
  type="empty" />
<xs:element name="serious"
  type="empty" />
<xs:element name="shocked"
  type="empty" />
<xs:element name="shy"
  type="empty" />
<xs:element name="sick"
  type="empty" />
<xs:element name="sleepy"
  type="empty" />
<xs:element name="stressed"
  type="empty" />
<xs:element name="surprised"
  type="empty" />
<xs:element name="thirsty"
  type="empty" />
<xs:element name="worried"
  type="empty" />
<xs:element name="other"
  type="Note_t" />
<xs:any namespace="##other"
  maxOccurs="unbounded" processContents="lax"/>
</xs:choice>
</xs:sequence>
</xs:choice>
</xs:sequence>
<xs:attributeGroup ref="fromUntil"/>
<xs:attribute name="id" type="xs:ID"/>
```



```
<xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>
</xs:element>

<xs:element name="place-is">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="note" type="Note_t" minOccurs="0"/>
      <xs:element name="audio" minOccurs="0">
        <xs:complexType>
          <xs:choice>
            <xs:element name="noisy" type="empty" />
            <xs:element name="ok" type="empty" />
            <xs:element name="quiet" type="empty" />
            <xs:element name="unknown" type="empty" />
          </xs:choice>
        </xs:complexType>
      </xs:element>
      <xs:element name="video" minOccurs="0">
        <xs:complexType>
          <xs:choice>
            <xs:element name="toobright" type="empty" />
            <xs:element name="ok" type="empty" />
            <xs:element name="dark" type="empty" />
            <xs:element name="unknown" type="empty" />
          </xs:choice>
        </xs:complexType>
      </xs:element>
      <xs:element name="text" minOccurs="0">
        <xs:complexType>
          <xs:choice>
            <xs:element name="uncomfortable" type="empty" />
            <xs:element name="inappropriate" type="empty" />
            <xs:element name="ok" type="empty" />
            <xs:element name="unknown" type="empty" />
          </xs:choice>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
    <xs:attributeGroup ref="fromUntil"/>
    <xs:attribute name="id" type="xs:ID"/>
    <xs:anyAttribute namespace="##any" processContents="lax"/>
  </xs:complexType>
</xs:element>

<xs:element name="place-type">
  <xs:annotation>
    <xs:documentation>
```


Describes the type of place the person is currently at.

```
</xs:documentation>
</xs:annotation>
<xs:complexType>
  <xs:sequence>
    <xs:element name="note" type="Note_t" minOccurs="0"/>
    <xs:choice>
      <xs:element name="aircraft" type="empty" />
      <xs:element name="airport" type="empty" />
      <xs:element name="arena" type="empty" />
      <xs:element name="automobile" type="empty" />
      <xs:element name="bank" type="empty" />
      <xs:element name="bar" type="empty" />
      <xs:element name="bus" type="empty" />
      <xs:element name="bus-station" type="empty" />
      <xs:element name="cafe" type="empty" />
      <xs:element name="classroom" type="empty" />
      <xs:element name="club" type="empty" />
      <xs:element name="construction" type="empty" />
      <xs:element name="convention-center" type="empty" />
      <xs:element name="cycle" type="empty" />
      <xs:element name="government" type="empty" />
      <xs:element name="hospital" type="empty" />
      <xs:element name="hotel" type="empty" />
      <xs:element name="industrial" type="empty" />
      <xs:element name="library" type="empty" />
      <xs:element name="office" type="empty" />
      <xs:element name="outdoors" type="empty" />
      <xs:element name="parking" type="empty" />
      <xs:element name="place-of-worship" type="empty" />
      <xs:element name="prison" type="empty" />
      <xs:element name="public" type="empty" />
      <xs:element name="public-transport" type="empty" />
      <xs:element name="residence" type="empty" />
      <xs:element name="restaurant" type="empty" />
      <xs:element name="school" type="empty" />
      <xs:element name="shopping-area" type="empty" />
      <xs:element name="stadium" type="empty" />
      <xs:element name="store" type="empty" />
      <xs:element name="street" type="empty" />
      <xs:element name="theater" type="empty" />
      <xs:element name="train" type="empty" />
      <xs:element name="train-station" type="empty" />
      <xs:element name="truck" type="empty" />
      <xs:element name="underway" type="empty" />
      <xs:element name="unknown" type="empty" />
      <xs:element name="warehouse" type="empty" />
      <xs:element name="water" type="empty" />
```



```
<xs:element name="watercraft" type="empty" />
<xs:element name="other" type="Note_t"/>
<xs:any namespace="##other" maxOccurs="unbounded"
  processContents="lax"/>
</xs:choice>
</xs:sequence>
<xs:attributeGroup ref="fromUntil"/>
<xs:attribute name="id" type="xs:ID"/>
<xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>
</xs:element>

<xs:element name="privacy">
  <xs:annotation>
    <xs:documentation>
      Indicates which type of communication third parties in the
      vicinity of the presentity are unlikely to be able to
      intercept accidentally or intentionally.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element name="note" type="Note_t" minOccurs="0"/>
      <xs:choice>
        <xs:element name="unknown" type="empty"/>
        <xs:sequence minOccurs="1">
          <xs:element name="audio" type="empty" minOccurs="0"/>
          <xs:element name="text" type="empty" minOccurs="0"/>
          <xs:element name="video" type="empty" minOccurs="0"/>
          <xs:any namespace="##other" minOccurs="0"
            maxOccurs="unbounded" processContents="lax"/>
        </xs:sequence>
      </xs:choice>
    </xs:sequence>
    <xs:attributeGroup ref="fromUntil"/>
    <xs:attribute name="id" type="xs:ID"/>
    <xs:anyAttribute namespace="##any" processContents="lax"/>
  </xs:complexType>
</xs:element>

<xs:element name="relationship">
  <xs:annotation>
    <xs:documentation>
      Designates the type of relationship an alternate contact
      has with the presentity.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType>
```



```
<xs:sequence>
  <xs:element name="note" type="Note_t" minOccurs="0"/>
  <xs:choice>
    <xs:element name="assistant" type="empty" />
    <xs:element name="associate" type="empty" />
    <xs:element name="family" type="empty" />
    <xs:element name="friend" type="empty" />
    <xs:element name="other" type="Note_t" minOccurs="0" />
    <xs:element name="self" type="empty" />
    <xs:element name="supervisor" type="empty" />
    <xs:element name="unknown" type="empty" />
    <xs:any namespace="##other" maxOccurs="unbounded"
      processContents="lax"/>
  </xs:choice>
</xs:sequence>
</xs:complexType>
</xs:element>

<xs:element name="service-class">
  <xs:annotation>
    <xs:documentation>
      Designates the type of service offered.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element name="note" type="Note_t" minOccurs="0"/>
      <xs:choice>
        <xs:element name="courier" type="empty" />
        <xs:element name="electronic" type="empty" />
        <xs:element name="freight" type="empty" />
        <xs:element name="in-person" type="empty" />
        <xs:element name="postal" type="empty" />
        <xs:element name="unknown" type="empty" />
        <xs:any namespace="##other" maxOccurs="unbounded"
          processContents="lax"/>
      </xs:choice>
    </xs:sequence>
  </xs:complexType>
</xs:element>

<xs:element name="sphere">
  <xs:annotation>
    <xs:documentation>
      Designates the current state and role that the person plays.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
```



```
<xs:choice minOccurs="0">
  <xs:element name="home" type="empty" />
  <xs:element name="work" type="empty" />
  <xs:element name="unknown" type="empty" />
  <xs:any namespace="##other" maxOccurs="unbounded"
    processContents="lax"/>
</xs:choice>
<xs:attributeGroup ref="fromUntil"/>
<xs:attribute name="id" type="xs:ID"/>
<xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>
</xs:element>

<xs:element name="status-icon">
  <xs:annotation>
    <xs:documentation>
      A URI pointing to an image (icon) representing the current
      status of the person or service.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:anyURI">
        <xs:attributeGroup ref="fromUntil"/>
        <xs:attribute name="id" type="xs:ID"/>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="time-offset">
  <xs:annotation>
    <xs:documentation>
      Describes the number of minutes of offset from UTC at the
      user's current location.
    </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:integer">
        <xs:attributeGroup ref="fromUntil"/>
        <xs:attribute name="description"
          type="xs:string"/>
        <xs:attribute name="id" type="xs:ID"/>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```



```
    </xs:complexType>
  </xs:element>

  <xs:element name="user-input">
    <xs:annotation>
      <xs:documentation>
        Records the user-input or usage state of the service or
        device.
      </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:simpleContent>
        <xs:extension base="activeIdle">
          <xs:attribute name="idle-threshold"
            type="xs:positiveInteger"/>
          <xs:attribute name="last-input" type="xs:dateTime"/>
          <xs:attribute name="id" type="xs:ID"/>
          <xs:anyAttribute namespace="##any"
            processContents="lax"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

6. Extending RPID

To add new elements to the enumerations <activities>, <mood>, <place-type>, <privacy>, <relationship> and <service-class>, the extension process described in PIDF [8] is followed, i.e., such extensions would use namespace designators such as urn:ietf:params:xml:ns:pidf:ext, where 'ext' is the name of the extension.

7. IANA Considerations

7.1 URN Sub-Namespace Registration for

'urn:ietf:params:xml:ns:pidf:rpids'

URI: urn:ietf:params:xml:ns:pidf:rpids

Description: This is the XML namespace for XML elements defined by RFCXXXX [RFC editor: replace with RFC number] to describe rich presence information extensions for the status element in the PIDF presence document format in the application/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>RPID: Rich Presence: Extensions to the Presence
    Information Data Format (PIDF)</title>
</head>
<body>
  <h1>Namespace for rich presence extension</h1>
  <h2>urn:ietf:params:xml:ns:pidf:rpidd</h2>
  <p>See <a href="URL of published RFC">RFC&rfc.number; [RFC
editor: replace with RFC number]</a>.</p>
</body>
</html>
END
```

7.2 Schema Registration for Schema

urn:ietf:params:xml:ns:pidf:status:rpidd

URI: please assign

Registrant Contact: IESG

XML: See [Section 5](#)

Note that this document does not need a new content type. It inherits the content type from [\[8\]](#), namely application/pidf+xml.

8. Security Considerations

The security considerations in [\[8\]](#) apply, as well as [\[7\]](#). Compared to PIDF, this presence document format reveals additional information about presentities 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 reference to an external object, the <status-icon> may allow the presentity to induce the watcher to retrieve data from a third party (content indirection attack), thus either retrieving harmful content or adding to the server load of the referenced resource.

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[Appendix A](#). Acknowledgements

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