**ภาคผวก A05  
โปรไฟล์เพื่อการเชื่อมโยงข้อมูล PM\_OMS**

การพัฒนาเชื่อมโยงข้อมูลระหว่างซอฟต์แวร์จำเป็นต้องมีข้อกำหนดกลางเพื่อการเชื่อมโยงข้อมูล มาตรฐาน ไออีซี ซิม หรือ IEC CIM (Common Information Model) เป็นมาตรฐานสากลเพื่อการเชื่อมโยงข้อมูลเกี่ยวกับ การจำหน่ายกระแสไฟฟ้าและการบริหารไฟฟ้าขัดข้อง ที่สำคัญได้แก่ IEC-61970 และ IEC-61968 มาตรฐานสากลดังกล่าวจัดทำขึ้นเพื่อใช้เป็นข้อกำหนดกลางในการรับส่งข้อมูลระหว่างซอฟต์แวร์ที่แตกต่างกัน เพื่อลดเวลา ลดค่าใช้จ่าย และเพิ่มประสิทธิภาพในการพัฒนาเชื่อมโยงข้อมูลระหว่างกัน ปัจจุบันผลิตภัณฑ์ซอฟต์แวร์ที่พัฒนาขึ้นเพื่อสนับสนุนการปฏิบัติระบบไฟฟ้าและบริหารไฟฟ้าขัดข้อง มักมีความสามารถในการเชื่อมโยงข้อมูลตามมาตรฐานนี้

โปรไฟล์เพื่อการเชื่อมโยงข้อมูล (CIM Profile) คือ ข้อกำหนดขอบเขตและคุณลักษณะเฉพาะของข้อมูลภายใต้บริบทหนึ่ง ประกอบด้วย ชื่อข้อมูล ความหมายและรูปแบบข้อมูล เพื่อใช้ในการพัฒนาระบบเชื่อมโยงข้อมูลภายใต้วัตถุประสงค์หนึ่ง ตัวอย่างโปรไฟล์มาตรฐาน ได้แก่ IEC-61970-452, IEC-61970-453, IEC-61970-456 องค์กรสามารถกำหนดโปรไฟล์ที่เหมาะสมกับบริบทของตนได้ โดยการกำหนดรายการข้อมูลเฉพาะส่วนที่จำเป็นสำหรับการเชื่อมโยงข้อมูลภายใต้บริบทนั้น มักมีขนาดเล็กและง่ายต่อการพัฒนา โปรไฟล์การเชื่อมโยงข้อมูลนี้จัดทำขึ้นตามมาตรฐานสากล IEC-61970-501 จัดทำขึ้นโดยใช้ซอฟต์แวร์เครื่องมือเพื่อใช้สร้างโปรไฟล์ อาทิ เช่น CIMtool เป็นต้น

เอกสารนี้อธิบายโปรไฟล์เพื่อการเชื่อมโยงระบบ SAP-PM ชื่อว่า PM\_OMS หรือเนมสเปส ชื่อเต็มว่า

CIM profile: [http://pea.co.th/cim/profile/PM\_OMS#](http://pea.co.th/cim/profile/PM_OMS)

ประกอบด้วย เอกสารดังนี้

1. เอกสารอธิบายโปรไฟล์ : PM\_OMS.rtf, PM\_OMS.html
2. แฟ้มเอกสารอิเล็กทรอนิกส์ ข้อกำหนดโปรไฟล์ : PM\_OMS.owl
3. แฟ้มเอกสารอิเล็กทรอนิกส์ IEC-61970-501 : PM\_OMS.legacy-rdfs
4. แฟ้มเอกสารอิเล็กทรอนิกส์ IEC-61968-100 : PM\_OMS.part100-ed2.xsd

ผู้รับจ้างต้องดำเนินการศึกษา ทบทวนและสอบทาน ข้อกำหนดโปรไฟลน์นี้ กับผู้ที่เกี่ยวข้องกับซอฟต์แวร์ที่จะเชื่อมโยงนั้น ปรับข้อกำหนดโปรไฟล์ให้สอดคล้องกับความต้องการของผู้เกี่ยวข้องและเสนอขอรับความเห็นชอบก่อนการดำเนินการ

**PM\_OMS\_Profile Profile**

Profile namespace: http://pea.co.th/cim/profile/PM\_OMS#

**Concrete Classes**

**OutageOrder**

Transmits an outage plan to a crew in order for the planned outage to be executed.

**Native Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **name** | **mult** | **type** | **description** |
| authorName | 1..1 | string | Name of the author of this document. |
| comment | 1..1 | string | Free text comment. |
| comment | 1..1 | string | Free-form comment associated with the outage order |
| createdDateTime | 1..1 | dateTime | Date and time that this document was created. |
| lastModifiedDateTime | 1..1 | dateTime | Date and time this document was last modified. Documents may potentially be modified many times during their lifetime. |
| revisionNumber | 1..1 | string | Revision number for this document. |
| subject | 1..1 | string | Document subject. |
| title | 1..1 | string | Document title. |
| type | 1..1 | string | Utility-specific classification of this document, according to its corporate standards, practices, and existing IT systems (e.g., for management of assets, maintenance, work, outage, customers, etc.). |
| OutagePlan | 1..1 | [OutagePlan](#OutagePlan) | The outage plan that is defined to address the outage order. |

**PlannedOutage**

**Native Members**

| **name** | **mult** | **type** | **description** |
| --- | --- | --- | --- |
| mRID | 1..1 | string | Master resource identifier issued by a model authority. The mRID is unique within an exchange context. Global uniqueness is easily achieved by using a UUID, as specified in RFC 4122, for the mRID. The use of UUID is strongly recommended.For CIMXML data files in RDF syntax conforming to IEC 61970-552, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. |
| aliasName | 1..1 | string | The aliasName is free text human readable name of the object alternative to IdentifiedObject.name. It may be non unique and may not correlate to a naming hierarchy.The attribute aliasName is retained because of backwards compatibility between CIM relases. It is however recommended to replace aliasName with the Name class as aliasName is planned for retirement at a future time. |
| authorName | 1..1 | string | Name of the author of this document. |
| comment | 1..1 | string | Free text comment. |
| communityDescriptor | 1..1 | string | a name to denote the community - this could be a name or a code of some kind. |
| createdDateTime | 1..1 | dateTime | Date and time that this document was created. |
| customersRestored | 1..1 | integer | number of customers that have been restored in the area. |
| description | 1..1 | string | The description is a free human readable text describing or naming the object. It may be non unique and may not correlate to a naming hierarchy. |
| lastModifiedDateTime | 1..1 | dateTime | Date and time this document was last modified. Documents may potentially be modified many times during their lifetime. |
| metersAffected | 1..1 | integer | The updated number of meters affected by the outage as reported by the OMS within the utility. It is assumed this number will be updated repeatedly until the full outage is resolved. |
| name | 1..1 | string | The name is any free human readable and possibly non unique text naming the object. |
| originalCustomersServed | 1..1 | integer | the total number of customers that are served in the area (both outaged and not outaged). |
| originalMetersAffected | 1..1 | integer | The original number of meters that were affected as reported by the OMS within the utility. That is, this is the total number of meters that were out at the beginning of the outage. |
| outageKind | 1..1 | [OutageStatusKind](#OutageStatusKind) | Defines if the outage has been verified or is only estimated |
| reason | 1..1 | string | The reason for the planned outage. |
| revisionNumber | 1..1 | string | Revision number for this document. |
| statusKind | 1..1 | [CrewStatusKind](#CrewStatusKind) | defines the status of the crew as in dispatched or arrived, etc. |
| subject | 1..1 | string | Document subject. |
| title | 1..1 | string | Document title. |
| type | 1..1 | string | Utility-specific classification of this document, according to its corporate standards, practices, and existing IT systems (e.g., for management of assets, maintenance, work, outage, customers, etc.). |
| utilityDisclaimer | 1..1 | string | This contains an disclaimers the utility would like to place on the data provided to any stakeholder. This may be different for different stakeholders. This should possibly be an attribute under the Organization class but it is placed here for now. |
| actualPeriod | 1..1 | [DateTimeInterval](#DateTimeInterval) | Actual outage period; end of the period corresponds to the actual restoration time. |
| estimatedPeriod | 1..1 | [DateTimeInterval](#DateTimeInterval) | Estimated outage period for a planned outage. The start of the period is the start of the planned outage and the end of the period corresponds to the end of the planned outage. |

**Abstract Classes**

**ActivityRecord**

Records activity for an entity at a point in time; activity may be for an event that has already occurred or for a planned activity.

**Native Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **name** | **mult** | **type** | **description** |
| mRID | 1..1 | string | Master resource identifier issued by a model authority. The mRID is unique within an exchange context. Global uniqueness is easily achieved by using a UUID, as specified in RFC 4122, for the mRID. The use of UUID is strongly recommended.For CIMXML data files in RDF syntax conforming to IEC 61970-552, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. |
| aliasName | 1..1 | string | The aliasName is free text human readable name of the object alternative to IdentifiedObject.name. It may be non unique and may not correlate to a naming hierarchy.The attribute aliasName is retained because of backwards compatibility between CIM relases. It is however recommended to replace aliasName with the Name class as aliasName is planned for retirement at a future time. |
| createdDateTime | 1..1 | dateTime | Date and time this activity record has been created (different from the 'status.dateTime', which is the time of a status change of the associated object, if applicable). |
| description | 1..1 | string | The description is a free human readable text describing or naming the object. It may be non unique and may not correlate to a naming hierarchy. |
| name | 1..1 | string | The name is any free human readable and possibly non unique text naming the object. |
| reason | 1..1 | string | Reason for event resulting in this activity record, typically supplied when user initiated. |
| severity | 1..1 | string | Severity level of event resulting in this activity record. |
| type | 1..1 | string | Type of event resulting in this activity record. |
| status | 1..1 | [Status](#Status) | Information on consequence of event resulting in this activity record. |

**CUWorkEquipmentItem**

Compatible unit for various types of WorkEquipmentAssets, including vehicles.

**Native Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **name** | **mult** | **type** | **description** |
| equipCode | 1..1 | string | The equipment type code. |
| rate | 1..1 | [CostRate](#CostRate) | Standard usage rate for the type of vehicle. |
| CompatibleUnits | 1..\* | [CompatibleUnit](#CompatibleUnit) |  |
| status | 1..1 | [Status](#Status) |  |
| TypeAsset | 1..1 | [WorkAsset](#WorkAsset) |  |

**OutagePlan**

Document containing the definition of planned outages of equipment and/or usage points. It will reference switching plans that are used to execute the planned outage.

**Native Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **name** | **mult** | **type** | **description** |
| mRID | 1..1 | string | Master resource identifier issued by a model authority. The mRID is unique within an exchange context. Global uniqueness is easily achieved by using a UUID, as specified in RFC 4122, for the mRID. The use of UUID is strongly recommended.For CIMXML data files in RDF syntax conforming to IEC 61970-552, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. |
| aliasName | 1..1 | string | The aliasName is free text human readable name of the object alternative to IdentifiedObject.name. It may be non unique and may not correlate to a naming hierarchy.The attribute aliasName is retained because of backwards compatibility between CIM relases. It is however recommended to replace aliasName with the Name class as aliasName is planned for retirement at a future time. |
| approvedDateTime | 1..1 | dateTime | The date and time the outage plan was approved |
| authorName | 1..1 | string | Name of the author of this document. |
| cancelledDateTime | 1..1 | dateTime | Date and Time the planned outage was canceled. |
| comment | 1..1 | string | Free text comment. |
| createdDateTime | 1..1 | dateTime | Date and time that this document was created. |
| description | 1..1 | string | The description is a free human readable text describing or naming the object. It may be non unique and may not correlate to a naming hierarchy. |
| lastModifiedDateTime | 1..1 | dateTime | Date and time this document was last modified. Documents may potentially be modified many times during their lifetime. |
| name | 1..1 | string | The name is any free human readable and possibly non unique text naming the object. |
| purpose | 1..1 | string | Purpose of this outage plan, such as whether it is to replace equipment or perform maintenance or repairs or to reconfigure network topology. |
| revisionNumber | 1..1 | string | Revision number for this document. |
| subject | 1..1 | string | Document subject. |
| title | 1..1 | string | Document title. |
| type | 1..1 | string | Utility-specific classification of this document, according to its corporate standards, practices, and existing IT systems (e.g., for management of assets, maintenance, work, outage, customers, etc.). |
| PlannedOutage | 1..1 | [PlannedOutage](#PlannedOutage) | The outage resulting from the execution of the outage plan. |

**WorkAsset**

Asset used to perform work.

**Native Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **name** | **mult** | **type** | **description** |
| mRID | 1..1 | string | Master resource identifier issued by a model authority. The mRID is unique within an exchange context. Global uniqueness is easily achieved by using a UUID, as specified in RFC 4122, for the mRID. The use of UUID is strongly recommended.For CIMXML data files in RDF syntax conforming to IEC 61970-552, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. |
| aliasName | 1..1 | string | The aliasName is free text human readable name of the object alternative to IdentifiedObject.name. It may be non unique and may not correlate to a naming hierarchy.The attribute aliasName is retained because of backwards compatibility between CIM relases. It is however recommended to replace aliasName with the Name class as aliasName is planned for retirement at a future time. |
| description | 1..1 | string | The description is a free human readable text describing or naming the object. It may be non unique and may not correlate to a naming hierarchy. |
| name | 1..1 | string | The name is any free human readable and possibly non unique text naming the object. |
| CUWorkEquipmentAsset | 1..1 | [CUWorkEquipmentItem](#CUWorkEquipmentItem) |  |

**WorkOrder**

**Native Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **name** | **mult** | **type** | **description** |
| mRID | 1..1 | string | Master resource identifier issued by a model authority. The mRID is unique within an exchange context. Global uniqueness is easily achieved by using a UUID, as specified in RFC 4122, for the mRID. The use of UUID is strongly recommended.For CIMXML data files in RDF syntax conforming to IEC 61970-552, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. |
| aliasName | 1..1 | string | The aliasName is free text human readable name of the object alternative to IdentifiedObject.name. It may be non unique and may not correlate to a naming hierarchy.The attribute aliasName is retained because of backwards compatibility between CIM relases. It is however recommended to replace aliasName with the Name class as aliasName is planned for retirement at a future time. |
| authorName | 1..1 | string | Name of the author of this document. |
| comment | 1..1 | string | Free text comment. |
| createdDateTime | 1..1 | dateTime | Date and time that this document was created. |
| description | 1..1 | string | The description is a free human readable text describing or naming the object. It may be non unique and may not correlate to a naming hierarchy. |
| lastModifiedDateTime | 1..1 | dateTime | Date and time this document was last modified. Documents may potentially be modified many times during their lifetime. |
| name | 1..1 | string | The name is any free human readable and possibly non unique text naming the object. |
| revisionNumber | 1..1 | string | Revision number for this document. |
| subject | 1..1 | string | Document subject. |
| title | 1..1 | string | Document title. |
| type | 1..1 | string | Utility-specific classification of this document, according to its corporate standards, practices, and existing IT systems (e.g., for management of assets, maintenance, work, outage, customers, etc.). |
| ActivityRecord | 1..\* | [ActivityRecord](#ActivityRecord) | The activity record for a document |

**Compound Types**

**Status**

Current status information relevant to an entity.

**Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **name** | **mult** | **type** | **description** |
| dateTime | 1..1 | dateTime | Date and time for which status 'value' applies. |
| reason | 1..1 | string | Reason code or explanation for why an object went to the current status 'value'. |
| remark | 1..1 | string | Pertinent information regarding the current 'value', as free form text. |
| value | 1..1 | string | Status value at 'dateTime'; prior status changes may have been kept in instances of activity records associated with the object to which this status applies. |

**Datatypes**

**CostRate**

Cost, in units of currency, per elapsed time.

XSD type: float