

# Changes in AIXM 5.1 from AIXM 5.0

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Federal Aviation  
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# The Change from 5.0 to 5.1

- **There were 46 accepted change proposals**
- **All available on AIXM Wiki**
- **Most were changes to existing features**
- **Some were major conceptual changes, however**



# New Features or Types

- **AeronauticalGroundLight**
  - Aerodrome Beacons, etc.
- **HotSpot**
- **RulesProcedures**
- **CodeMarkingConditionType**



# Removed Features, classes, types

- **AirspaceAssociation removed**
- **TerrainPoint removed**



# Updates to Features

- **Nose-In Guidance at Aircraft Stands**
- **GateStand->AircraftStand**
- **Add synchronized lighting attribute to VerticalStructure**
- **Update to material attribute of VerticalStructure**
- **Addition of certification date info to AirportHeliport**
- **Runway Centerline Point designator attribute**



# Updates to Features, cont'd

- **Move attributes from VerticalStructure to VerticalStructurePart**
- **Addition of Navaid purpose**
- **Addition of attributes to FAS Data Block**
- **Addition of offset attributes to FinalLeg**
- **Updates to SurfaceContamination feature to better represent SNOWTAMs**
- **Add signalType to RadioFrequencyArea and NavaidOperationalStatus**
- **Add Morse Code to MarkerBeacon feature**



# Updates to Relationships

- **AirportHeliport isManagedBy relationship updated to association class**
- **ApproachLightingSystem now inherits from GroundLightSystem**
- **Multiplicity of relationship from PostalAddress, etc. to ContactInformation**
- **Self-association for OrganizationAuthority**
- **Add relationship from Navaid to AirportHeliport**
- **Reversed association between Procedure and SafeAltitudeArea**



# Updates to Relationships, cont'd

- **New association between SafeAltitudeArea and AirportHeliport**
- **New association between MissedApproachLeg and ApproachCondition**





# Updates to Types

- Added new value in CodeProcedureDistanceType
- Added new value in CodeAltitudeAdjustmentType
- Remove Y, Z from CodeRouteDesignatorSuffixType
- Separating RunwayElement and TaxiwayElement types
- ILS Category changes to types
- Add RNAV types to CodeDesignatedPointType
- Use of ISO Language codes instead of custom
- CodeFuelType is changed to codelist
- Additional uom values
- NOTAM updates to CodePurposeType, CodeFlightStatusType and CodeOriginType
- Direction Finder added as a Navaid Type
- ALLOWED as FlightRestriction type



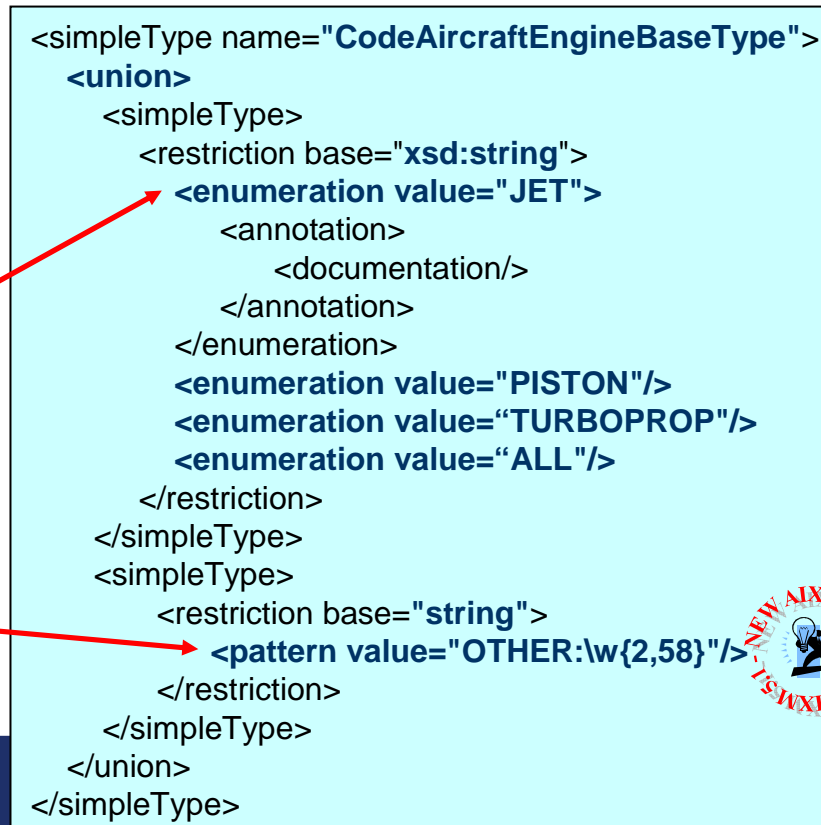
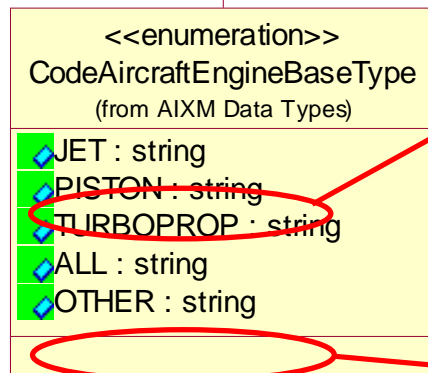
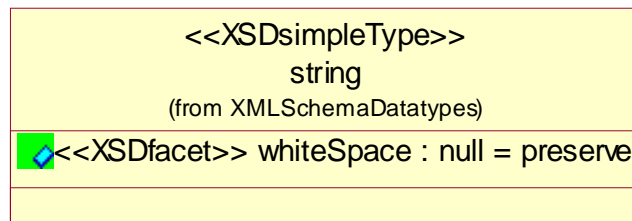
# Changes to XSD



# AIXM 5.1 Mapping Rules - Datatypes

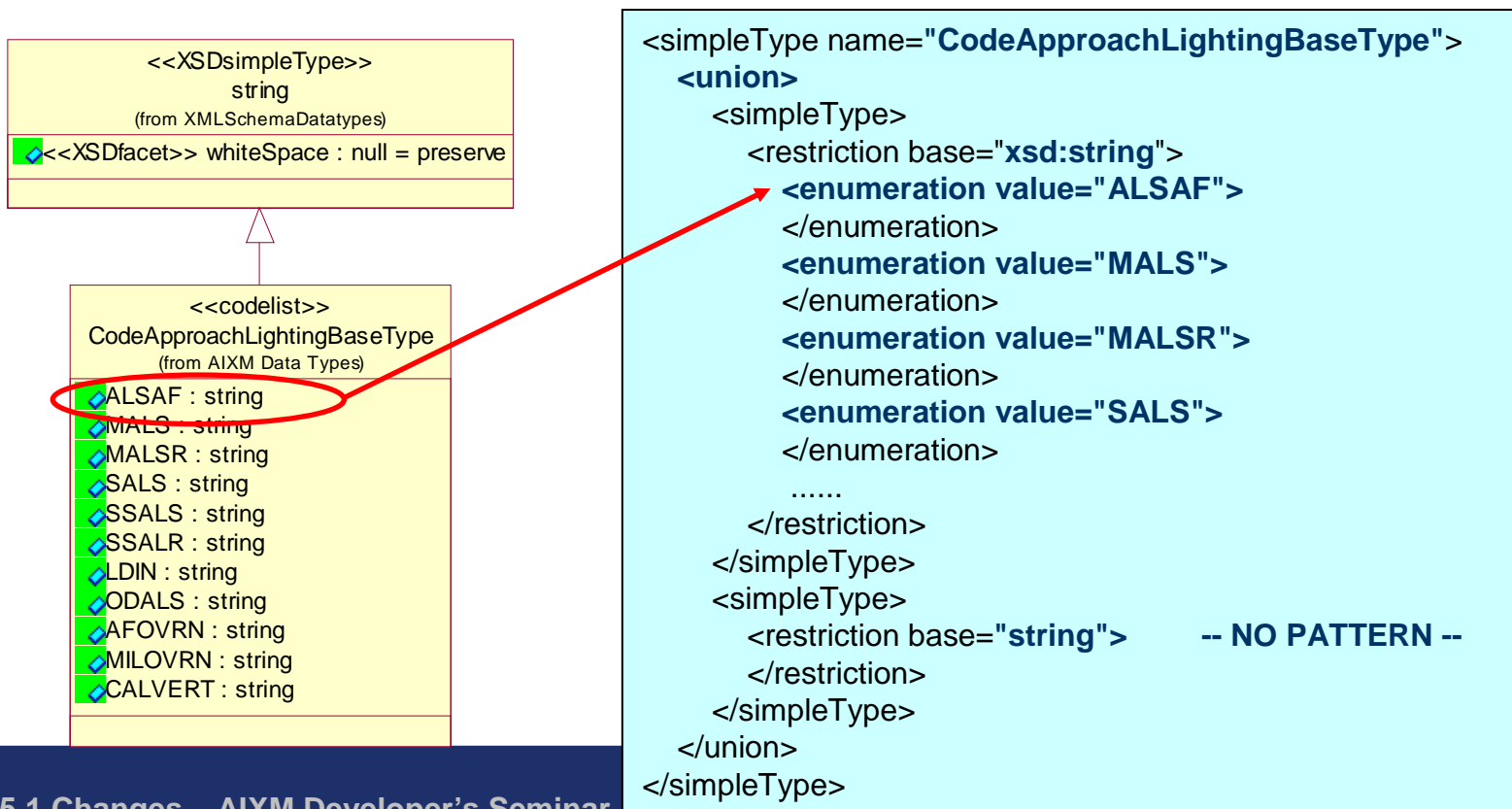
- Mapping

## <<enumeration>>



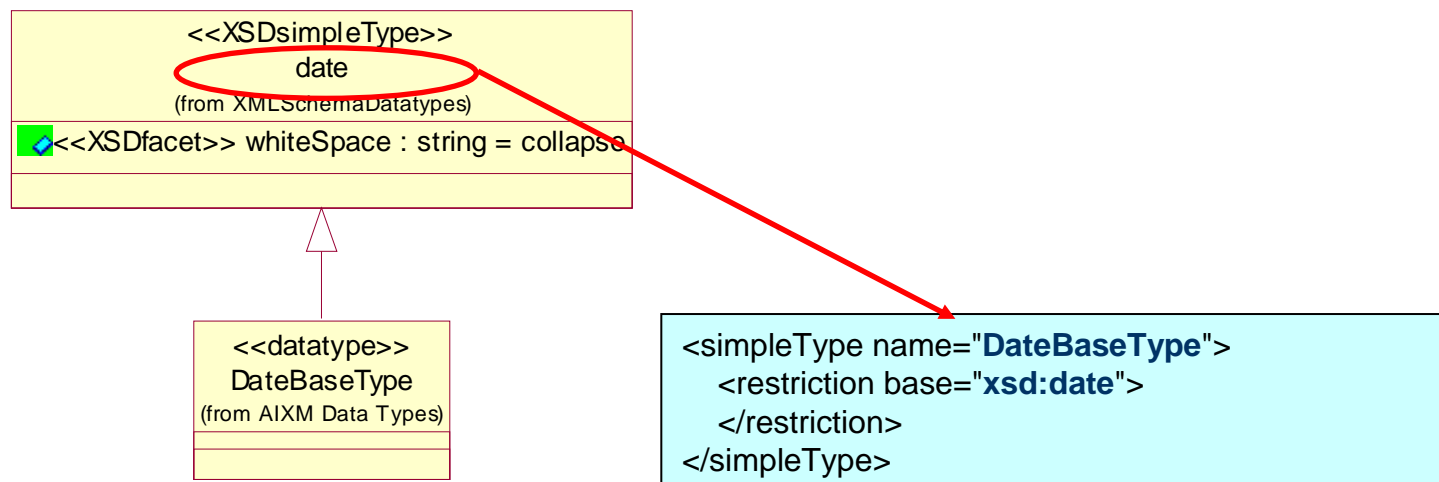
# AIXM 5.1 Mapping Rules - Datatypes

- Mapping <<codelist>>



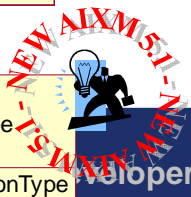
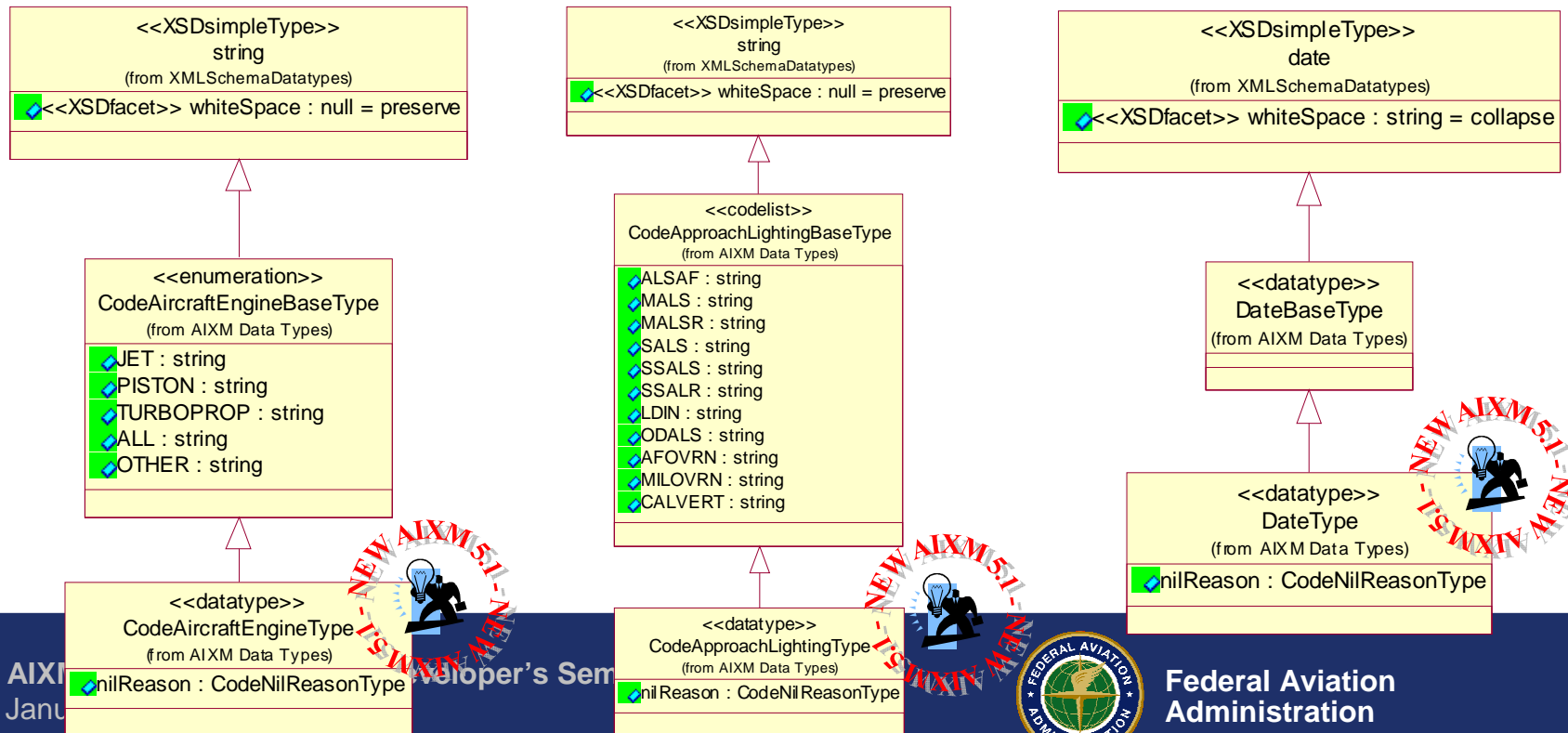
# AIXM 5.1 Mapping Rules - Datatypes

- Mapping `<<datatype>>` - default case



# AIXM 5.1 Mapping Rules - NilReason

- Most of AIXM 5.1 Data Types define a nilReason, used to indicate the reason for a null value.



# AIXM 5.1 Mapping Rules - NilReason

- Mapping nilReason

```
<<XSDsimpleType>>
string
(from XMLSchemaDatatypes)
<<XSDfacet>> whiteSpace : null = preserve
```

```
<<enumeration>>
CodeAircraftEngineBaseType
(from AIXM Data Types)
JET : string
PISTON : string
TURBOPROP : string
ALL : string
OTHER : string
```

```
<<datatype>>
CodeAircraftEngineType
(from AIXM Data Types)
nilReason : NilReasonType
```

```
<simpleType name="CodeAircraftEngineBaseType">
  <union>
    <simpleType>
      <restriction base="xsd:string">
        <enumeration value="JET">
          .....
        </enumeration>
      </restriction>
    </simpleType>
    <simpleType>
      <restriction base="string">
        <pattern value="OTHER:\w{2,58}"/>
      </restriction>
    </simpleType>
  </union>
</simpleType>
```

```
<complexType name="CodeAircraftEngineType">
  <simpleContent>
    <extension base="aixm:CodeAircraftEngineBaseType">
      <attribute name="nilReason" type="aixm:NilReasonType"/>
    </extension>
  </simpleContent>
</complexType>
```



# AIXM 5.1 Mapping Rules - UOM

- Mapping Units of Measurement

<<XSDsimpleType>>  
decimal  
(from XMLSchemaDatatypes)

<<datatype>>  
ValDepthBaseType  
(from AIXM Data Types)

<<datatype>>  
ValDepthType  
(from AIXM Data Types)

uom : UomDepthType  
nilReason : CodeNilReasonType

```
<simpleType name="ValDepthBaseType">  
  <restriction base="xsd:decimal">  
    </restriction>  
  </simpleType>
```

```
<complexType name="ValDepthType">  
  <simpleContent>  
    <extension base="aixm:ValDepthBaseType">  
      <attribute name="nilReason" type="aixm:NilReasonType"/>  
      <attribute name="uom" type="aixm:UomDepthType" use="required"/>  
    </extension>  
  </simpleContent>  
</complexType>
```



# Conceptual Changes

- **Replacement of all textual attributes with Notes**
  - To facilitate a truly digital, non-textual definitions
- **In enumerations, allow for OTHER:<value>**
  - Allows for arbitrary enumeration values to be added by the user
- **Greater harmonization of AIXM and AMDB standards**
  - Focus on SurfaceCharacteristics
- **Aircraft Characteristics Updates**
  - Updates across features and types to better represent the capabilities of an aircraft



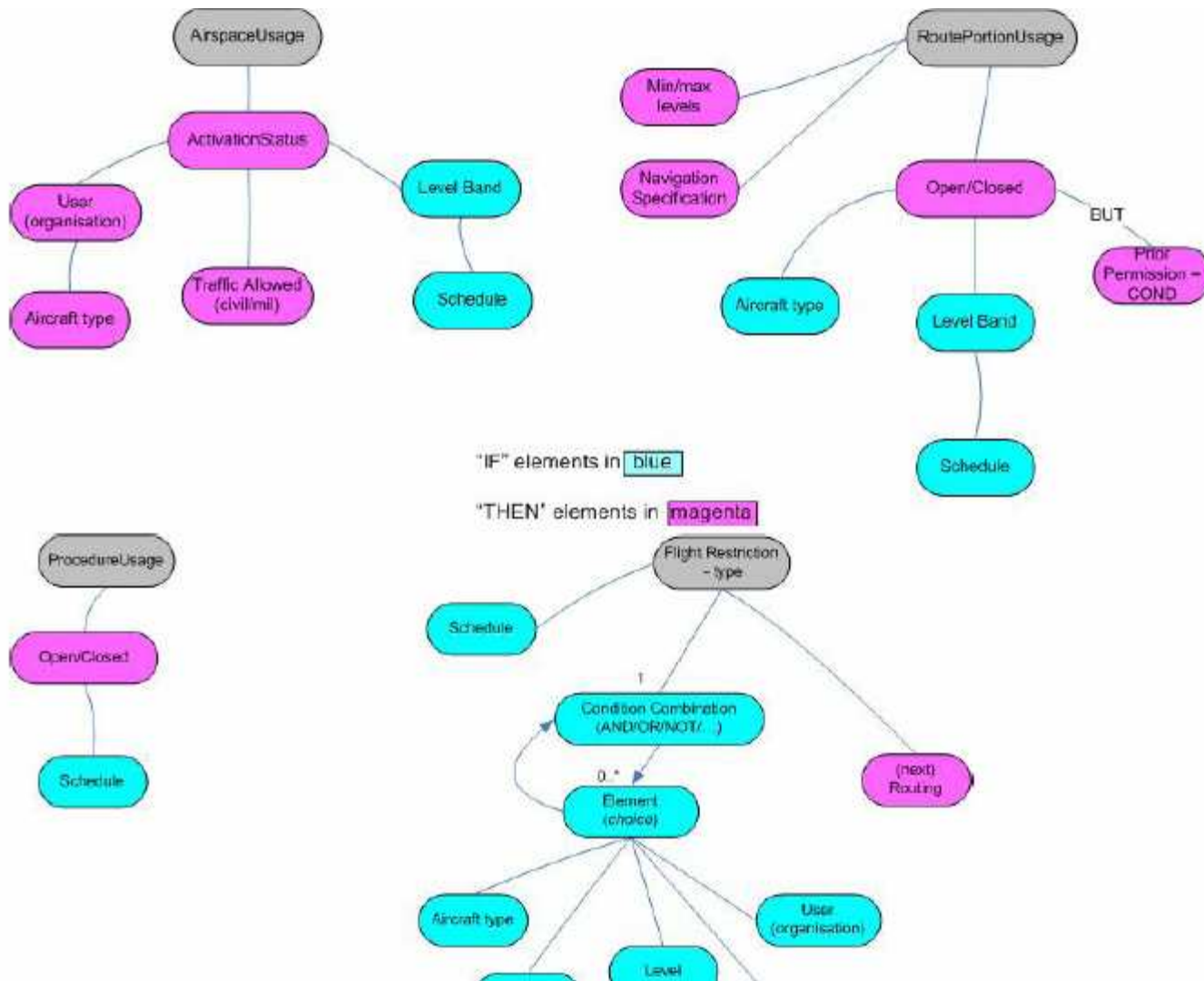
# Conceptual Changes, cont'd

- **Schedule**
  - Simplification of representation of schedule across features (major change)
- **Harmonization of Usage Features**
  - Tied to the above
- **Timesheet**
  - Significant updates to Timesheet



# Usage & Properties with Schedule

- **In AIXM 5.0, the concept of “usage” was not consistent**
  - Should be how a feature can be used, not its status
  - Mixed status, flight restrictions and complex schedules without consistency across features
- **Simplify with PropertiesWithSchedule**
  - Replace Timesheet with PropertiesWithSchedule
  - Represents status at different times
    - No longer a separate feature



# Example of Properties With Schedule



# Future Plans

- **The next major update to AIXM (either 5.2 or 6.0) will come in 2012**
- **Minor updates in between, but they should not include any conceptual changes**
  - Minimal impact to backward compatibility

