

# **NANC 179 – TN Range Notifications**

## **Overview**

Currently notifications for TN range related operations come as individual notifications for each TN in the range. It has been suggested that the notifications for all TN's in a range be combined into one notification.

This would include the following notifications:

- Object Creation
- Attribute Value Change
- Status Attribute Value Change

The following functional operations would be affected:

- Old SP Range Creates
- New SP Range Creates
- Conflict
- Cancel
- Activate
- Modify Active

Benefits of NANC 179:

- Large reduction in number of messages sent to the SOA and NPAC SMS.
- Reduces NPAC SMS database activity due to less logging and processing.
- Improved interface performance for both NPAC SMS and SOA.

The range notifications would not be emitted from a specific subscription version in the range, as these notifications are to date. They would have to be emitted from the container object for the subscription versions (InpSubscriptions).

## **REQUIREMENTS**

### **GDMO**

#### **Managed Objects**

```
-- 14.0 LNP Subscriptions Managed Object Class
```

```
lnpSubscriptions MANAGED OBJECT CLASS
  DERIVED FROM "CCITT Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
  CHARACTERIZED BY
    lnpSubscriptionsPkg,
    subscriptionVersionLocalSMS-CreatePkg;
  CONDITIONAL PACKAGES
  lnpDownloadPkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
  subscriptionVersionOldSP-CreatePkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
  subscriptionVersionNewSP-CreatePkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
  subscriptionVersionDisconnectPkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
  subscriptionVersionModifyPkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
```

```
subscriptionVersionActivatePkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
subscriptionVersionCancelPkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
subscriptionVersionOldSP-CancellationPkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
subscriptionVersionNewSP-CancellationPkg PRESENT IF
    !the object is instantiated on the NPAC SMS!,
subscriptionVersionRemoveFromConflictPkg PRESENT IF
    !the object is instantiated on the NPAC SMS!;
REGISTERED AS {LNP-OIDS.lnp-objectClass 14};
```

```
lnpSubscriptionsPkg PACKAGE
  BEHAVIOUR
    lnpSubscriptionsDefinition,
    lnpSubscriptionsBehavior;
  ATTRIBUTES
    lnpSubscriptionsName GET;
  NOTIFICATIONS
    subscriptionVersionLocalSMS-ActionResults,
    subscriptionVersionRangeStatusAttributeValueChange,
    subscriptionVersionRangeAttributeValueChangeBehavior,
    subscriptionVersionRangeObjectCreation;
  ;
```

```
lnpSubscriptionsDefinition BEHAVIOUR
  DEFINED AS !
    Local SMS and NPAC SMS Managed Object for the SOA to NPAC SMS
    and the Local SMS to NPAC SMS interface.

    The lnpSubscriptions class is the managed object that is used
    as the container object for the subscription version objects
    on the NPAC SMS and the Local SMS.

    Local SMS interfaces must be able to support scope/filtered
    M-SETS and M-DELETES with a TN range as the primary filter.

  !;
```

```
lnpSubscriptionsBehavior BEHAVIOUR
  DEFINED AS !
    Local SMS and NPAC SMS Managed Object

    The Local SMS (Data Download Association Function) and the service
    provider SOA (SOA Management Association Function) can M-GET any
    lnpSubscriptions object. The lnpSubscriptionsName attribute
    is read only and can not be changed via the Local SMS Interface
    once the object has been created. The value of
    lnpSubscriptionsName will always be "lnpSubscriptions".

    Only one of these objects will exist and it will only be
    created at startup of the CMIP agent software on the NPAC SMS
    or the Local SMS.

    The lnpDownloadPkg will only be used for a lnpSubscriptions
    object instantiated on the NPAC SMS. This package is used to
    used for initiating downloading of subscriptionVersions
    object creation, deletion, or modifications to the Local
    SMS (Data Download Association Function).

    The subscriptionVersionOldSP-CreatePkg will only be used for a
    lnpSubscriptions object instantiated on the NPAC SMS. This
    package is used for creation of subscription versions for
```

porting TNs by the old service provider.

The subscriptionVersionNewSP-CreatePkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for creation of subscription versions for porting TNs by the new service provider.

The subscriptionVersionDisconnectPkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for disconnection of a ported TN by the current service provider.

The subscriptionVersionModifyPkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for modification of a ported TN by a service provider.

The subscriptionVersionActivatePkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for activation of a ported TN by a new service provider.

The subscriptionVersionCancelPkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for cancellation of a ported TN by a service provider.

The subscriptionVersionOldSP-CancellationPkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for acknowledgment of subscription versions with status values of cancel-pending. Acknowledgments from both old and new service provider SOAs take a version from cancel-pending and to a canceled state. This action is used by the old service provider SOA.

The subscriptionVersionNewSP-CancellationPkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for acknowledgment of subscription versions with status values of cancel-pending. Acknowledgments from both old and new service provider SOAs take a version out of cancel-pending and to a canceled state. This action is used by the new service provider SOA.

The subscriptionVersionRemoveFromConflictPkg will only be used for a lnpSubscriptions object instantiated on the NPAC SMS. This package is used for setting the status of subscription versions with status values of conflict to pending. This action is used by either the new or old service provider SOA.

!;

```
-- LNP Log Record for the Subscription Version Range Status Attribute Value
--      Change Notification
```

```
lnpLogRangeStatusAttributeValueChangeRecord MANAGED OBJECT CLASS
  DERIVED FROM "CCITT Rec. X.721 (1992) | ISO/IEC 10165-2 :
1992":eventLogRecord;
  CHARACTERIZED BY
    lnpLogRangeStatusAttributeValueChangePkg;
  REGISTERED AS {LNP-OIDS.lnp-objectClass 10};
```

```
lnpLogRangeStatusAttributeValueChangePkg PACKAGE
  BEHAVIOUR
    lnpLogRangeStatusAttributeValueChangeDefinition,
```

```

        lnpLogRangeStatusAttributeValueChangeBehavior;
ATTRIBUTES
    subscriptionVersionRangeAttributeValueChangeInfo GET,
    accessControl GET;
;

lnpLogRangeStatusAttributeValueChangeDefinition BEHAVIOUR
    DEFINED AS !
        The lnpLogStatusAttributeValueChangeRecord class is the managed
        object that is used to create log records for the
        subscriptionVersionRangeStatusAttributeValueChange Notification.
    !;

lnpLogRangeStatusAttributeValueChangeBehavior BEHAVIOUR
    DEFINED AS !
        This log record can be used by any CME wanting to log the
        subscriptionVersionRangeStatusAttributeValueChange Notification.
    !;

```

### **Attributes**

```

-- LNP Subscription Version Range Status Attribute Value Change Information

subscriptionVersionRangeStatusAttributeValueChangeInfo ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
        Attribute-ASN1Module.RangeStatusAttributeValueChangeInfo;
    MATCHES FOR EQUALITY;
    BEHAVIOUR subscriptionVersionRangeStatusAttributeValueChangeInfoBehavior;
    REGISTERED AS {LNP-OIDS.lnp-attribute 98};

subscriptionVersionRangeStatusAttributeValueChangeInfoBehavior BEHAVIOUR
    DEFINED AS !
        This attribute is used to store the range status attribute value change
        information for subscription version range status attribute value
        change notifications in a log record.
    !;

-- LNP Subscription Version Range Attribute Value Change Information

subscriptionVersionRangeAttributeValueChangeInfo ATTRIBUTE
    WITH ATTRIBUTE SYNTAX Attribute-ASN1Module.RangeAttributeValueChangeInfo;
    MATCHES FOR EQUALITY;
    BEHAVIOUR subscriptionVersionRangeAttributeValueChangeInfoBehavior;
    REGISTERED AS {LNP-OIDS.lnp-attribute 98};

subscriptionVersionRangeAttributeValueChangeInfoBehavior BEHAVIOUR
    DEFINED AS !
        This attribute is used to store the range attribute value change
        information for subscription version range attribute value change
        notifications in a log record.
    !;

-- LNP Subscription Version Object Creation Information

subscriptionVersionRangeObjectCreationInfo ATTRIBUTE
    WITH ATTRIBUTE SYNTAX Attribute-ASN1Module.RangeObjectCreationInfo;
    MATCHES FOR EQUALITY;
    BEHAVIOUR subscriptionVersionRangeObjectCreationInfoBehavior;
    REGISTERED AS {LNP-OIDS.lnp-attribute 98};

subscriptionVersionRangeObjectCreationInfoBehavior BEHAVIOUR
    DEFINED AS !

```

This attribute is used to store the range object creation information for subscription version object creation information in a log record.

!;

## **Notifications**

-- LNP Subscription Version Range Status Attribute Value Change Notification

```
subscriptionVersionRangeStatusAttributeValueChange NOTIFICATION
  BEHAVIOUR subscriptionVersionRangeStatusAttributeValueChangeBehavior;
  WITH INFORMATION SYNTAX LNP-ASN1.VersionRangeStatusAttributeValueChange
  AND ATTRIBUTE IDS
    range-status-attribute-value-change-info
      subscriptionVersionRangeStatusAttributeValueChangeInfo,
    access-control accessControl;
  REGISTERED AS {LNP-OIDS.lnp-notification 11};
```

```
subscriptionVersionRangeStatusAttributeValueChangeBehavior BEHAVIOUR
  DEFINED AS !
  This notification type is used to report changes to the
  subscriptionVersionStatus field for range operations.
  It uses the status attribute value change notification
  which is based on the attribute value change notification
  as defined in M.3100 with the addition of the list of failed
  service providers in cases where the version status is active,
  failed or partially failed and the
  subscriptionStatusChangeCauseCode if it is set.
```

!;

-- LNP Subscription Version Range Attribute Value Change Notification

```
subscriptionVersionRangeAttributeValueChange NOTIFICATION
  BEHAVIOUR subscriptionVersionRangeAttributeValueChangeBehavior;
  WITH INFORMATION SYNTAX LNP-ASN1.VersionRangeAttributeValueChange
  AND ATTRIBUTE IDS
    range-attribute-value-change-info
      subscriptionVersionRangeAttributeValueChangeInfo,
    access-control accessControl;
  REGISTERED AS {LNP-OIDS.lnp-notification 11};
```

```
subscriptionVersionRangeAttributeValueChangeBehavior BEHAVIOUR
  DEFINED AS !
  This notification type is used to report changes to the
  Attributes in the subscription versions for range operations.
  It uses the attribute value change notification
  which is based on the attribute value change notification
  as defined in M.3100.
```

!;

-- LNP Subscription Version Range Object Creation Notification

```
subscriptionVersionRangeObjectCreation NOTIFICATION
  BEHAVIOUR subscriptionVersionRangeObjectCreationBehavior;
  WITH INFORMATION SYNTAX LNP-ASN1.VersionRangeObjectCreation
  AND ATTRIBUTE IDS
    range-object-creation-info
      subscriptionVersionRangeObjectInfo,
    access-control accessControl;
  REGISTERED AS {LNP-OIDS.lnp-notification 11};
```

```
subscriptionVersionRangeObjectCreationBehavior BEHAVIOUR
```

```
DEFINED AS !
    This notification type is used to report creation of
    subscription versions for range operations.
    It uses the object creation notification
    as defined in M.3100.
```

```
!;
```

## **ASN.1**

### **Import Clause Modification:**

```
-- DMI
```

```
AttributeValueChangeInfo, ObjectInfo
    FROM Notification-ASN1Module {joint-iso-ccitt ms(9) smi(3) part2(2)
        asn1Module(2) 2};
```

### **New ASN.1:**

```
RangeStatusAttributeValueChangeInfo ::= SET OF SEQUENCE {
    value-change-info [0] AttributeValueChangeInfo,
    failed-service-provs [1] Failed-SP-List OPTIONAL,
    subscription-status-change-cause-code [2] SubscriptionStatusChangeCauseCode
    OPTIONAL
}
```

```
VersionRangeStatusAttributeValueChange ::= SEQUENCE {
    Range-status-attribute-value-changes RangeStatusAttributeValueChangeInfo,
    access-control LnpAccessControl
}
```

```
RangeAttributeValueChangeInfo ::= SET OF AttributeValueChangeInfo;
```

```
VersionRangeAttributeValueChange ::= SEQUENCE {
    range-attribute-value-change SET OF RangeAttributeValueChangeInfo,
    access-control LnpAccessControl
}
```

```
RangeObjectCreationInfo ::= SET OF ObjectInfo;
```

```
VersionRangeObjectCreation ::= SEQUENCE {
    range-object-creation RangeObjectCreationInfo,
    access-control LnpAccessControl
}
```

**Need log records and subscriptionVersionRangeAttributeValueChangeInfo definition.**

## **IIS Text Modification**

The following text is an excerpt from the end of section 5.2.3 “Data Origination Authentication” on how access control is handled for the Object Creation, Object Deletion and Attribute Value Change Notifications:

ObjectCreation, ObjectDeletion, and AttributeValueChange should use the “information” attribute (*i.e.*, sub-index 6.1.7.3, 7.1.6.3, and 8.1.6.3 in section 9.21.5, *subscriptionVersionNPACNotifications*, Exhibit 83), which is an ANY DEFINED BY to contain the access control field. The values and authentication for the notification access control fields are the same as above.

This section would need to be modified to add the following text:

For range ObjectCreation and AttributeValueChange notifications the access control would not be placed in the information attribute but rather the access control attribute defined. This would allow for the access control information only be present once in the range notifications.