Periodic Registration Support

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Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	AMF
Applicable Platform(s)	SMI
Feature Default Setting	Enabled - Always-on
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2021.04.0

Feature Description

The Access and Mobility Management Function (AMF) supports periodic registration to the UE to confirm its availability. The procedure is controlled in the UE by the periodic registration update timer, T3512.

The timer that is run in the AMF is called the Mobile Reachability (MR) timer. It is configurable but is different from T3512. T3512 is the configured in the UE, and the MR timer is set to 4 minutes higher than T3512.

The MR timer in the AMF is restarted every time the UE moves to IDLE state, and stopped when the AMF receives any message from the UE.

When the MR timer expires, the AMF stops paging the UE.

The periodic registration timer (T3512) is supported as per *3GPP TS 24.501 v15.0.0*. Currently, in AMF, the T3512 timer expiry supports implicit deregistration.

The AMF sends the T3512 timer value in the Registration Accept or Registration Reject message to the UE and the UE uses this value to send the periodic registration information.

How it Works

This section describes how this feature works.

Call Flows

This section describes the key call flows of Priodic Registration feature.

Periodic Registration without Authentication Call Flow

This section describes the Periodic Registration without Authentication call flow.

Figure 1: Periodic Registration without Authentication Call Flow

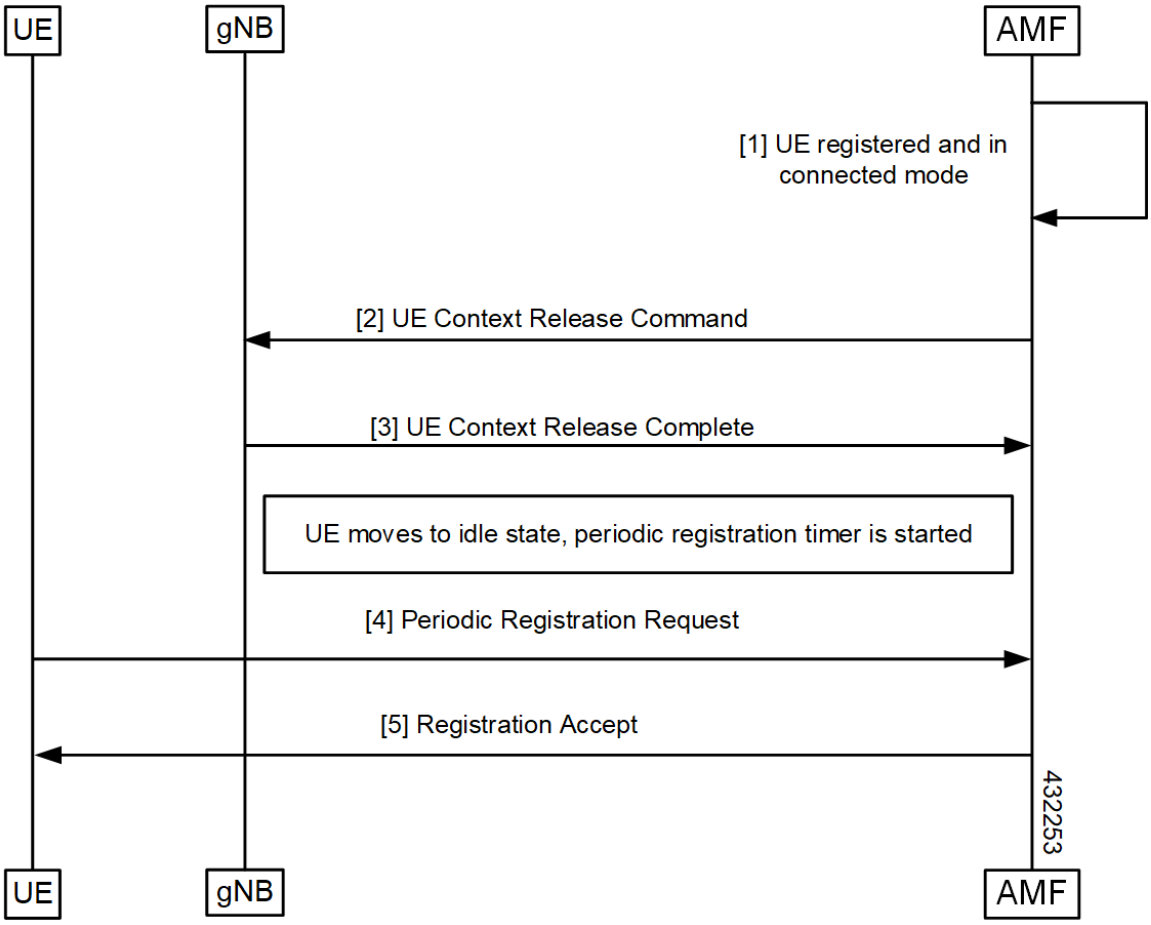

Table 3: Periodic Registration without Authentication Call Flow Description

Step	Description
1	The UE registered with the network and it's in CONNECTED mode.
2	The AMF sends the Context Release Command to the gNB.
3	The AMF receives the Context Release Complete from the gNB.
4	When UE moves to IDLE state, a periodic timer started and UE sends periodic registration request to the AMF.
5	The UE receives Registration Accept from the AMF.

Periodic Registration with Authentication Call Flow

This section describes the Periodic Registration with Authentication call flow.

Figure 2: Periodic Registration with Authentication Call Flow

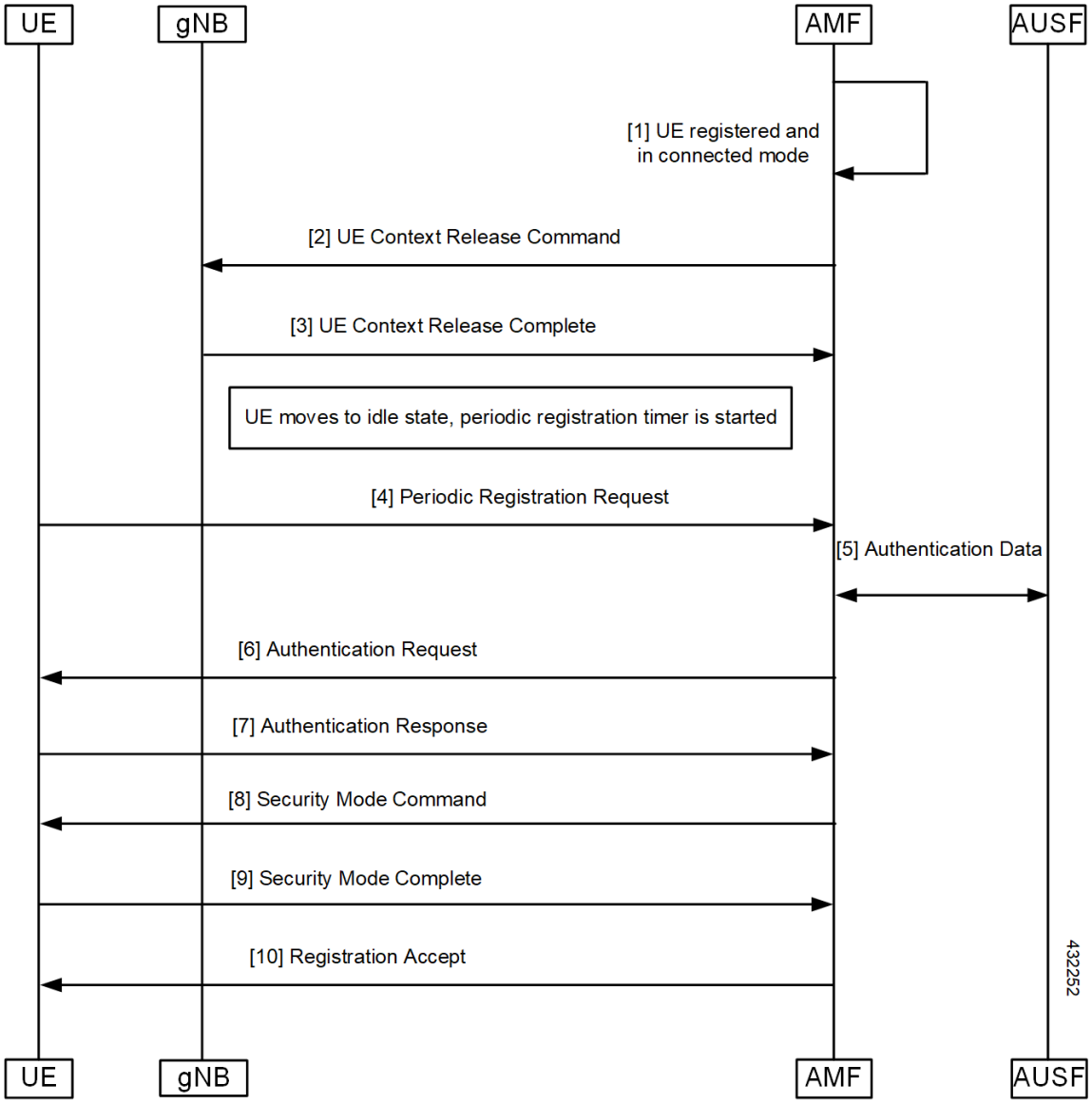

Table 4: Periodic Registration with Authentication Call Flow Description

Step	Description
1	Periodic Registration with Authentication UE registered with the network and it's in CONNECTED mode.
2	The AMF sends the Context Release Command to the gNB.
3	The AMF receives the Context Release Complete from the gNB.

Step	Description
4	When the UE moves to IDLE state, a periodic timer started and the UE sends the Periodic Registration Request to the AMF.
5	Authentication data exchanged between the AMF and the AUSF.
6	The AMF sends the Authentication Request to the UE.
7	The AMF receives the Authentication Response from the UE.
8	The AMF sends the Security Mode Command to the UE.
9	The AMF receives the Security Mode Complete Command from the UE.
10	The AMF sends the Registration Accept to the AMF.

Feature Configuration

Configuring this feature involves the following steps.

- T3512 timer is configured in the call-control profile. For more information, refer to Configuring the T3512 Timer, on page 5.
- Periodic registration is enabled in the call-control profile. For more information, refer to Configuring Authentication Enable, on page 5.

Configuring the T3512 Timer

To configure the T3512 timer, use the following configuration.

```
config
  amf-global
    call-control-policy policy_name
      timers t3512 value value_in_seconds
      end
```

NOTES:

- **call-control-policy** *policy_name*—Specify the UE call control polocy name.
- **timers t3512 value** *value_in_seconds*—Specify the T3512 timer value in seconds. It's an unsigned integer in the range from 0-35712000.

Configuring Authentication Enable

To enable the authentication, use the following configuration.

```
configure
  amf-global
    call-control-policy policy_name
```

```
enable-auth-periodic-reg [ false | true ]
end
```

NOTES:

- **call-control-policy** *policy_name*—Specify the UE call control polocy name.
- **enable-auth-periodic-reg [false | true]**—Allows to set enabling authenticated periodic registration request as true or false.

OAM Support

This section describes operations, administration, and maintenance information for this feature.

Bulk Statistics Support

The following statistics are supported for the periodic registration feature

- periodic_registration_request - The number of Periodic Registration Request messages received.
- NumPeroidicRegTimerExpiry - The number of Periodic Registration timer expires.