Session Timers

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

AMF supports the following timers:

- **T3502** (t3502): It operates in the 5GMM-DEREGISTERED and 5GMM-REGISTERED states. AMF provides this timer value to UE in the Registration Accept and Registration Reject messages.

- **T3512** (t3512): It operates in the 5GMM-REGISTERED state. AMF provides this timer value to UE in the Registration Accept message.

- **T3513**: It operates in the 5GMM-REGISTERED state. It starts when the Paging procedure is initiated (with default paging algorithm) and stops when the Paging procedure ends (with the reception of paging response).

- **T3522** (t3522): It operates in the 5GMM-DEREGISTERED-INITIATED state. It starts with the transmission of Deregistration Request message and stops after receiving Deregistration Accept message.

- **T3550** (t3550): It operates in the 5GMM-COMMON-PROCEDURE-INITIATED state. It starts with the transmission of Registration Accept message and stops after receiving the Registration Complete message.

- **T3555** (t3555): It operates in the 5GMM-REGISTERED state. It starts with the transmission of Configuration Update Command message with the ACK bit set in the Configuration Update Indication IE. Stops with the Configuration Update complete message.

- **T3560** (t3560): It operates in the 5GMM-COMMON-PROCEDURE-INITIATED state. It starts with the transmission of Authentication Request message and Security Mode Command. Stops after receiving the following messages:

  - Authentication Response

  - Authentication Failure

  - Security Mode Complete

  - Security Mode Reject

- **T3570** (t3570): It operates in the 5GMM-REGISTERED state. It starts with the transmission of Identity Request message and stops after receiving the Identity Response message.

- **HO Supervisory** (ho-supervisory): It supervises PDU responses from SMF during N2, N26, and Xn handovers.

- **Tidt** (tidt): It starts after four minutes of T3512 timer expiry. The subscriber gets Deregistered implicitly upon this timer expiry.

- **Tpurge** (tpurge): It starts when the Tidt timer expires. AMF sends a request to the UDM to Deregister (purge) the UE from the UDM for 3GPP access upon this timer expiry.

For information on the timer configurations, refer to Feature Configuration, on page 7.

How it Works

This section describes how this feature works.

Call Flows

This section describes the key call flows for the AMF timers.

T3502 Call Flow

This section describes the T3502 timer call flow.
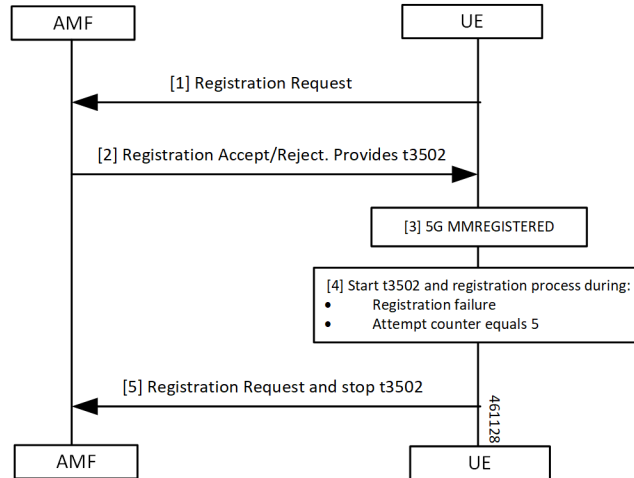
Figure 1: T3502 Timer Call Flow

Table 3: T3502 Timer Call Flow Description

Step	Description
1, 2	The UE sends the Registration Request to the AMF and receives response of reject or accept. The UE starts the T3502 timer.
3	The 5G MM Registration process takes place at the UE.
4	The UE starts the T3502 timer and the Registration process during: • Registration failure or • Attempt counter equals 5.
5	The UE sends Registration Request to the AMF and stops the T3502 timer.

T3512 Call Flow

This section describes the T3512 timer call flow.
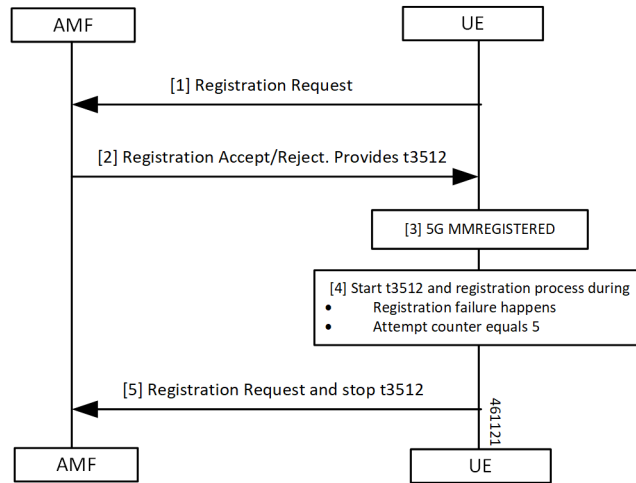
Figure 2: T3512 Timer Call Flow

Table 4: T3512 Timer Call Flow Description

Step	Description
1, 2	The UE sends Registration Request to the AMF and receives response of reject or accept. The UE starts the T3512 timer.
3	The 5G MM Registration process takes place at the UE.
4	The UE starts the T3512 timer and the Registration process during: • Registration failure or • Attempt counter equals 5.
5	The UE sends Registration Request to the AMF and stops the T3512 timer.

T3522 Call Flow

This section describes the T3522 timer call flow.
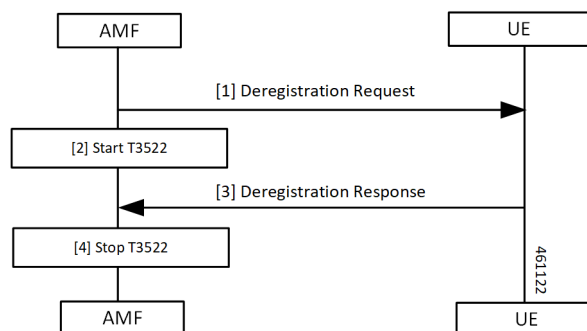
Figure 3: T3522 Timer Call Flow

Table 5: T3522 Timer Call Flow Description

Step	Description
1, 2	The AMF sends the Deregistration Request to the UE and starts the T3522 timer.
3, 4	The AMF receives the Deregistration Response from the UE and stops the T3522 timer.

T3550 Call Flow

This section describes the T3550 call flow.
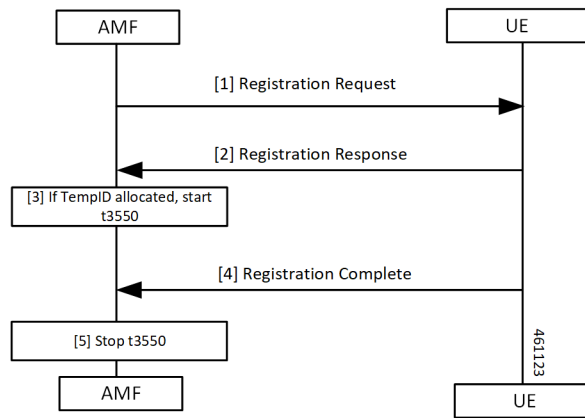
Figure 4: T3550 Timer Call Flow

Table 6: T3550 Timer Call Flow Description

Step	Description
1, 2	The AMF sends the Deregistration Request to the UE and receives the response.
3	The AMF starts the timer T3550 when temporary ID is allocated.
4, 5	AMF receives Deregistration Response from the UE and stops the T3550 timer.

T3555 Call Flow

This section describes the T3555 call flow.
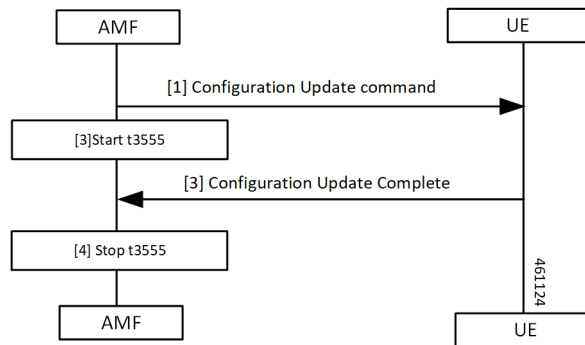
Figure 5: T3555 Timer Call Flow

Table 7: T3555 Timer Call Flow Description

Step	Description
1, 2	The AMF sends the Configuration Update Command to the UE and starts the T3555 timer.
3, 4	The AMF receives the Configuration Update Complete from the UE and stops the T3555 timer.

T3560 Call Flow

This section describes the T3560 timer call flow.
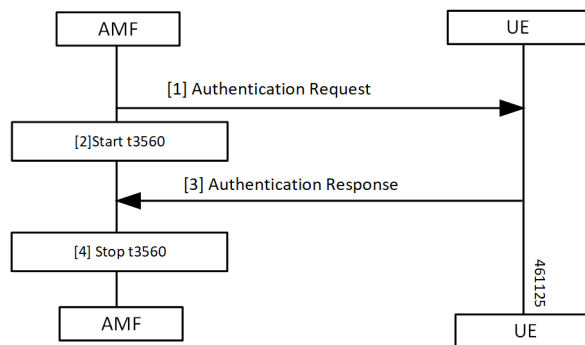
Figure 6: T3560 Call Flow

Table 8: T3560 Timer Call Flow Description

Step	Description
1, 2	The AMF sends the Authentication Request to the UE and starts the T3560 timer.
3, 4	The AMF receives the Authentication Response from the UE and stops the T3560 timer.

T3570 Call Flow

This section describes the T3570 timer call flow.
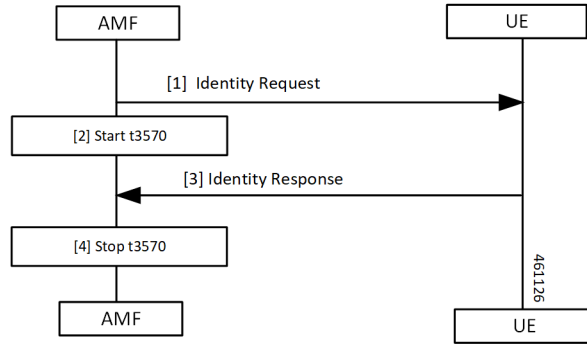
Figure 7: T3570 Call Flow

Table 9: T3570 Timer Call Flow Description

Step	Description
1, 2	The AMF sends the Identity Request to the UE and starts the T3570 timer.
3, 4	The AMF receives the Identity Response from the UE and stops the T3570 timer.

Feature Configuration

To configure this feature, use the following configuration:

```
config
 amf-global
   call-control-policy policy_name
    timers timer_type { retry retry_count | value timeout_value }
    end
```

NOTES:

- **timers** *timer_type* **retry** *retry_count*—Specify the retry count.

- **timers** *timer_type* **value** *timeout_value*—Specify the timeout value.

  For the timer_type, refer to the following table.

Table 10: 3GPP Timers and Values

Timer	Retry Count	Timeout Value
tidt	Not Applicable	Must be an integer in the range of 0–35712000 seconds. The default value is 3480 seconds.
ho-supervisory	Not Applicable	Must be an integer in the range of 100–10000 mill seconds. The default value is 500 milliseconds.

Timer	Retry Count	Timeout Value
tpurge	Not Applicable	Must be an integer in the range of 0–35712000 seconds. The default value is 86400.
t3502	Not Applicable	Must be an integer in the range of 0–35712000 seconds. The default value is 720 seconds.
t3512	Not Applicable	Must be an integer in the range of 0–35712000 seconds. The default value is 3240 seconds.
t3513	Must be an integer in the range of 1–5. The default value is 2.	Must be an integer in the range of 1–10 seconds. The default value is 5 seconds.
t3522	Must be an integer in the range of 0–5. The default value is 4.	Must be an integer in the range of 0–30 seconds. The default value is 6 seconds.
t3550	Must be an integer in the range of 0–5. The default value is 4.	Must be an integer in the range of 0–30 seconds. The default value is 6 seconds.
t3555	Must be an integer in the range of 0–5. The default value is 4.	Must be an integer in the range of 0–30 seconds. The default value is 6 seconds.
t3560	Must be an integer in the range of 0–5. The default value is 4.	Must be an integer in the range of 0–30 seconds. The default value is 6 seconds.
t3570	Must be an integer in the range of 0–5. The default value is 4.	Must be an integer in the range of 0–30 seconds. The default value is 6 seconds.