To create a security case for Instant Messaging (IM) software from the given pattern, we will need to customize the placeholders with specific information relevant to the IM software. Below is the instantiated security case in its predicate form, followed by the hierarchical tree format representation.

### Security Case for Instant Messaging (IM) Software:

@Assurance\_case

\*\*Instant Messaging (IM) Security Case\*\*

```

G1: IM software is acceptably secure in the messaging system.

C1: Definition and description of IM software.

C2: Definition and description of messaging system.

C3: Definition of acceptably secure.

S1: Argument that IM software assets are under protection.

J1: Protection of software assets supports that IM software is acceptably secure.

G2: All identified IM software critical assets are protected.

S2: Respective arguments for IM software critical assets.

C4: List of IM software critical assets.

J2: Relationship between assets is clear and can be argued separately.

G3: IM software critical asset is protected.

S3: Argument of the type to which the IM software critical asset belongs.

C5: List of software critical asset types in PEDD.

J3: Types of software assets are according to PEDD.

G4: IM software critical asset which belongs to the type "User Message Data" is protected.

G4: IM software critical asset which belongs to the type "Encryption Keys" is protected.

G4: IM software critical asset which belongs to the type "User Account Data" is protected.

G4: IM software critical asset which belongs to the type "Server Logs" is protected.

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This hierarchical tree format with dashes(-) denotes different levels of the argument.

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- G1: IM software is acceptably secure in the messaging system.

- C1: Definition and description of IM software.

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- J1: Protection of software assets supports that IM software is acceptably secure.

- G2: All identified IM software critical assets are protected.

- S2: Respective arguments for IM software critical assets.

- C4: List of IM software critical assets.

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- C5: List of software critical asset types in PEDD.

- J3: Types of software assets are according to PEDD.

- G4: IM software critical asset which belongs to the type "User Message Data" is protected.

- G4: IM software critical asset which belongs to the type "Encryption Keys" is protected.

- G4: IM software critical asset which belongs to the type "User Account Data" is protected.

- G4: IM software critical asset which belongs to the type "Server Logs" is protected.

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By following these steps, the security case for Instant Messaging (IM) software is fully instantiated and depicted in a hierarchical tree format.

addCode

addText