

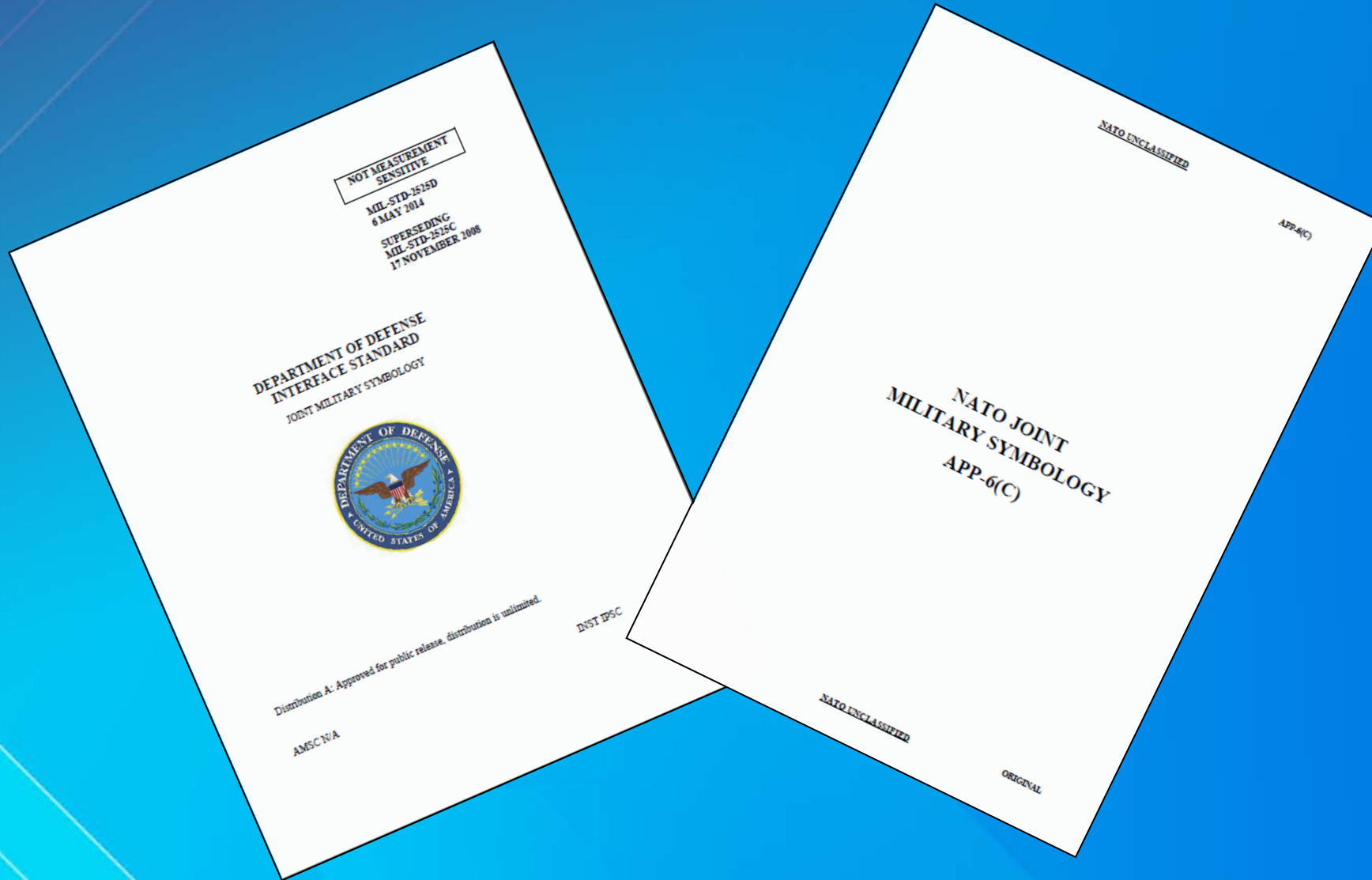


# Creating Overlays for Military Operations

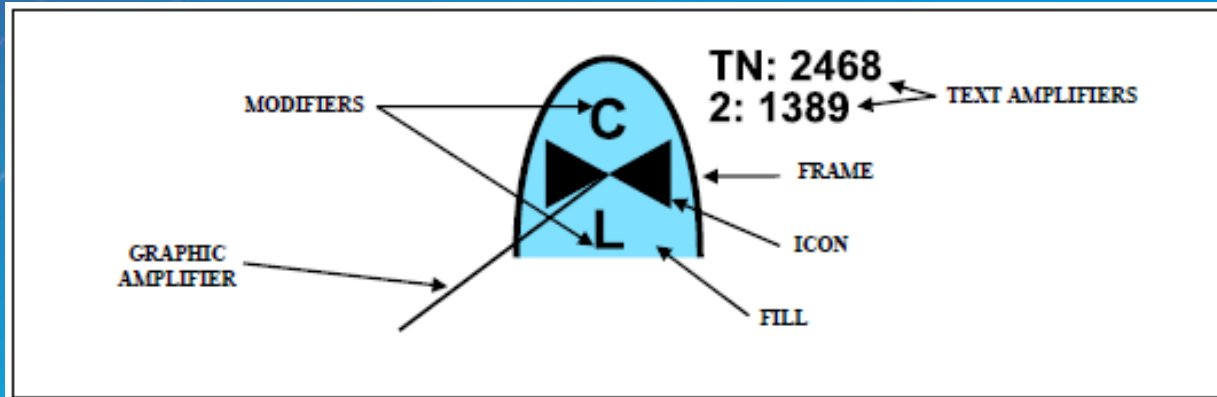
Renee Bernstein

Jim Weakland

# MIL-STD-2525 and NATO APP-6



# Anatomy of a Symbol

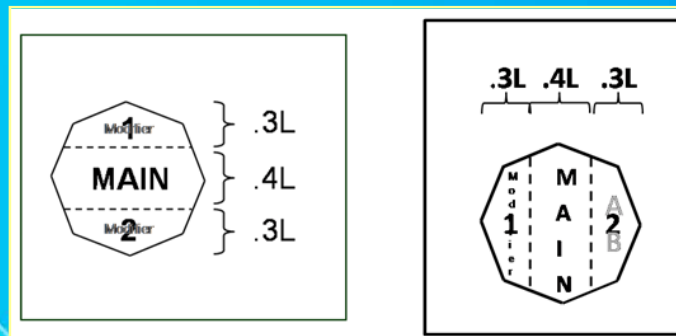
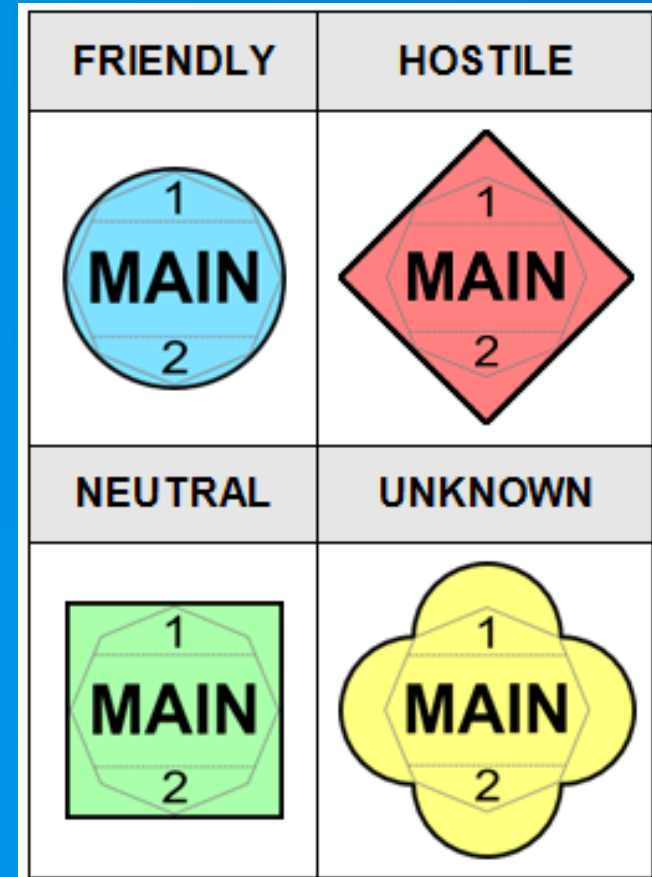
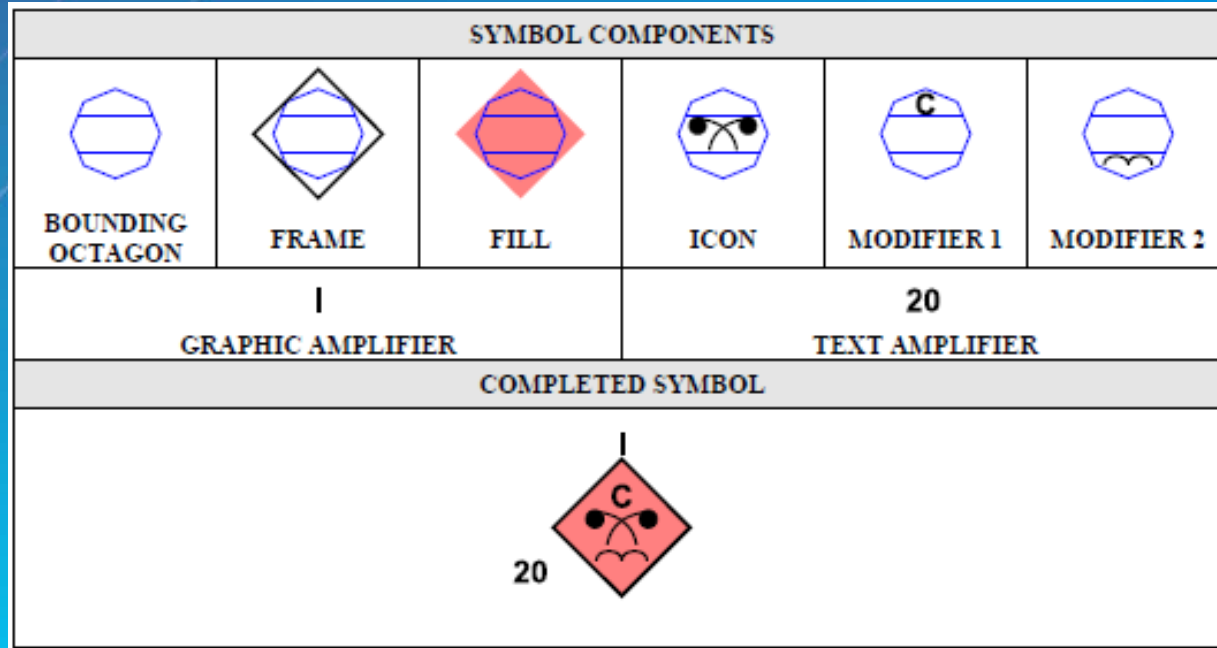


			LAND EQUIPMENT AND SEA SURFACE	SUBSURFACE	ACTIVITY/EVENT
	← 1.1L →	← 1.1L →	← 1.44L →	← 1.44L →	← 1.44L →
	← 1.1L →	← 1.1L →	← 1.5L →	← 1.2L →	← 1.5L →
	← 1.1L →	← 1.1L →	← 1.1L →	← 1.1L →	← 1.1L →
	← 1.1L →	← 1.1L →	← 1.1L →	← 1.1L →	← 1.1L →
	← 1.5L →	← 1.5L →	← 1.44L →	← 1.44L →	← 1.44L →
	← 1.5L →	← 1.5L →	← 1.44L →	← 1.44L →	← 1.44L →
	← 1.5L →	← 1.5L →	← 1.44L →	← 1.44L →	← 1.44L →
	← 1.5L →	← 1.5L →	← 1.44L →	← 1.44L →	← 1.44L →

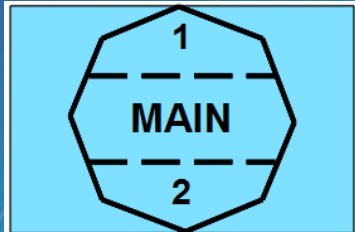
# Framing a Symbol

DIMENSION STANDARD IDENTITY	UNKNOWN	SPACE	AIR	LAND UNIT	LAND EQUIPMENT AND SEA SURFACE	LAND INSTALLATION	SUBSURFACE	ACTIVITY/ EVENT
PENDING (YELLOW)								
UNKNOWN (YELLOW)								
FRIEND (CYAN)								
NEUTRAL (GREEN)								
HOSTILE (RED)								
ASSUMED FRIEND (CYAN)								
SUSPECT (RED)								

# “Parts Box” Approach



# Full Frame or Main Icon



Code: 120300

Icon Type: Full Frame

**ANTI-TANK/ANTI-ARMOR**

Type: Entity Type  
Entity: MOVEMENT AND  
MANEUVER  
Symbol Set Code: 10  
Code: 120400  
Icon Type: Full Frame

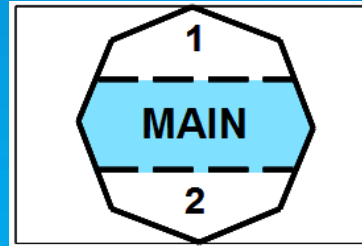
**ARMORED**

Type: Entity Type  
Entity: MOVEMENT AND  
MANEUVER/  
ANTI-TANK/ANTI-ARMOR  
Symbol Set Code: 10  
Code: 120401  
Icon Type: Full Frame

**MOTORIZED**

Type: Entity Type  
Entity: MOVEMENT AND  
MANEUVER/  
ANTI-TANK/ANTI-ARMOR  
Symbol Set Code: 10  
Code: 120402  
Icon Type: Full Frame

	ICON	REMARKS
		The grey box is not to be drawn. It is shown here only as a reference to position and proportion of the icon within the frame.
		The grey box is not to be drawn. It is shown here only as a reference to position and proportion of the icon within the frame.
		The grey box is not to be drawn. It is shown here only as a reference to position and proportion of the icon within the frame.
		The grey box is not to be drawn. It is shown here only as a reference to position and proportion of the icon within the frame.



Entity: MOVEMENT AND  
MANEUVER  
Symbol Set Code: 10  
Code: 121600  
Icon Type: Main

**SPECIAL FORCES**

Type: Entity Type  
Entity: MOVEMENT AND  
MANEUVER  
Symbol Set Code: 10  
Code: 121700  
Icon Type: Main

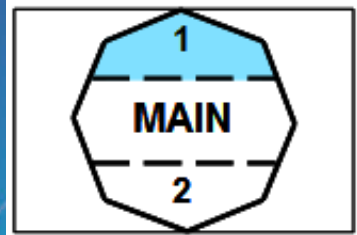
**SPECIAL OPERATIONS FORCES  
(SOF)**

Type: Entity Type  
Entity: MOVEMENT AND  
MANEUVER  
Symbol Set Code: 10  
Code: 121800  
Icon Type: Main

ICON	ICON	REMARKS
		N/A
		N/A
		N/A



# Sector Modifiers



Code: 01

**AREA**

Symbol Set Code: 10  
Code: 02

**ATTACK**

Symbol Set Code: 10  
Code: 03

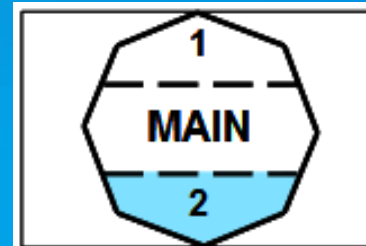
**BIOLOGICAL**

Symbol Set Code: 10  
Code: 04

**BORDER**

Symbol Set Code: 10  
Code: 05

CATEGORY	MODIFIER	REMARKS
MOBILITY		US only
CAPABILITY		N/A
CAPABILITY		N/A
CAPABILITY		N/A
CAPABILITY		N/A



**ARCTIC**

Symbol Set Code: 10  
Code: 02

**BATTLE DAMAGE REPAIR**

Symbol Set Code: 10  
Code: 03

**BICYCLE EQUIPPED**

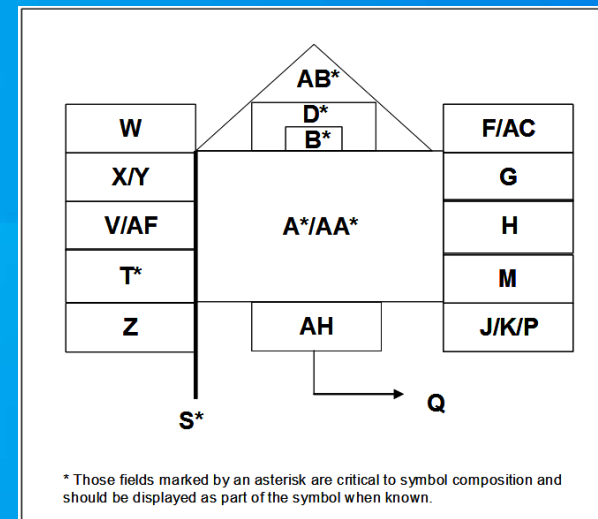
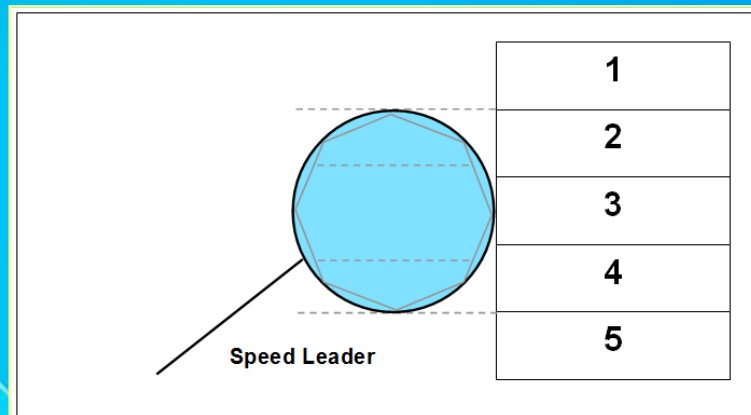
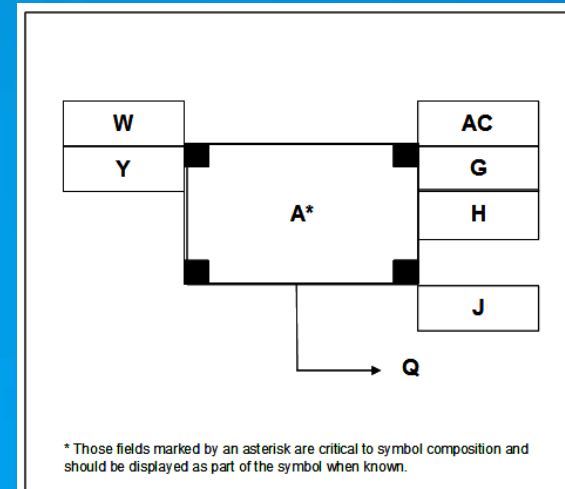
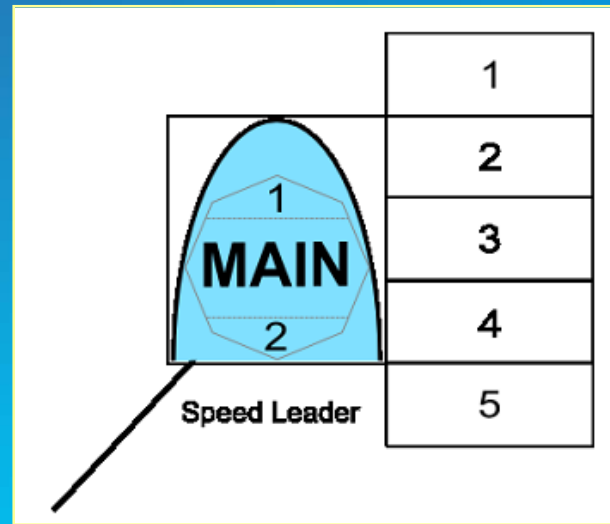
Symbol Set Code: 10  
Code: 04

**CASUALTY STAGING**

Symbol Set Code: 10  
Code: 05

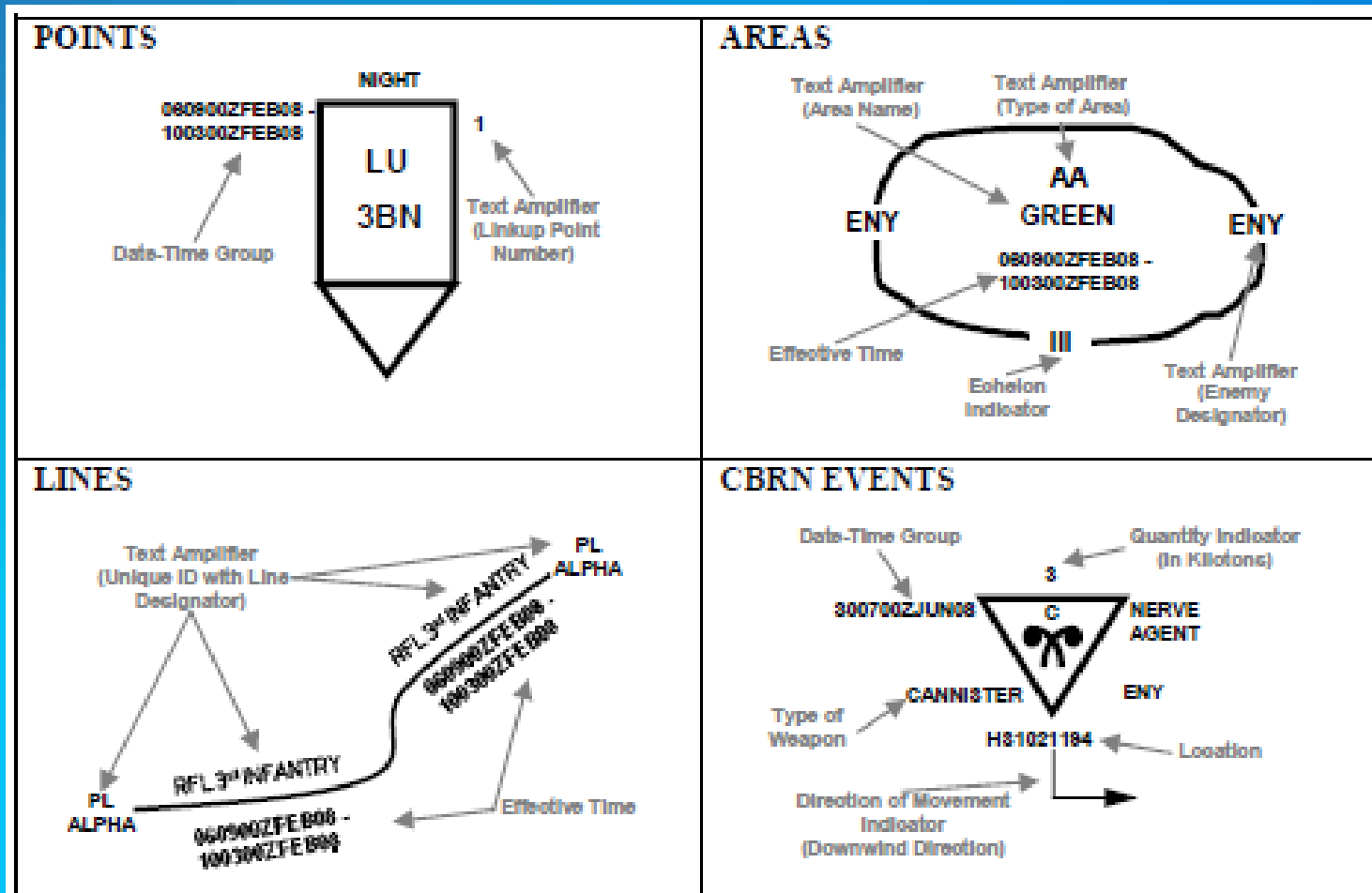
CATEGORY	MODIFIER	REMARKS
MOBILITY		N/A
MOBILITY		N/A
CAPABILITY		N/A
MOBILITY		N/A
CAPABILITY		Modifier is offset so that the modifier is not compromised by the main sector icon.

# Amplifiers Differ by Dimension

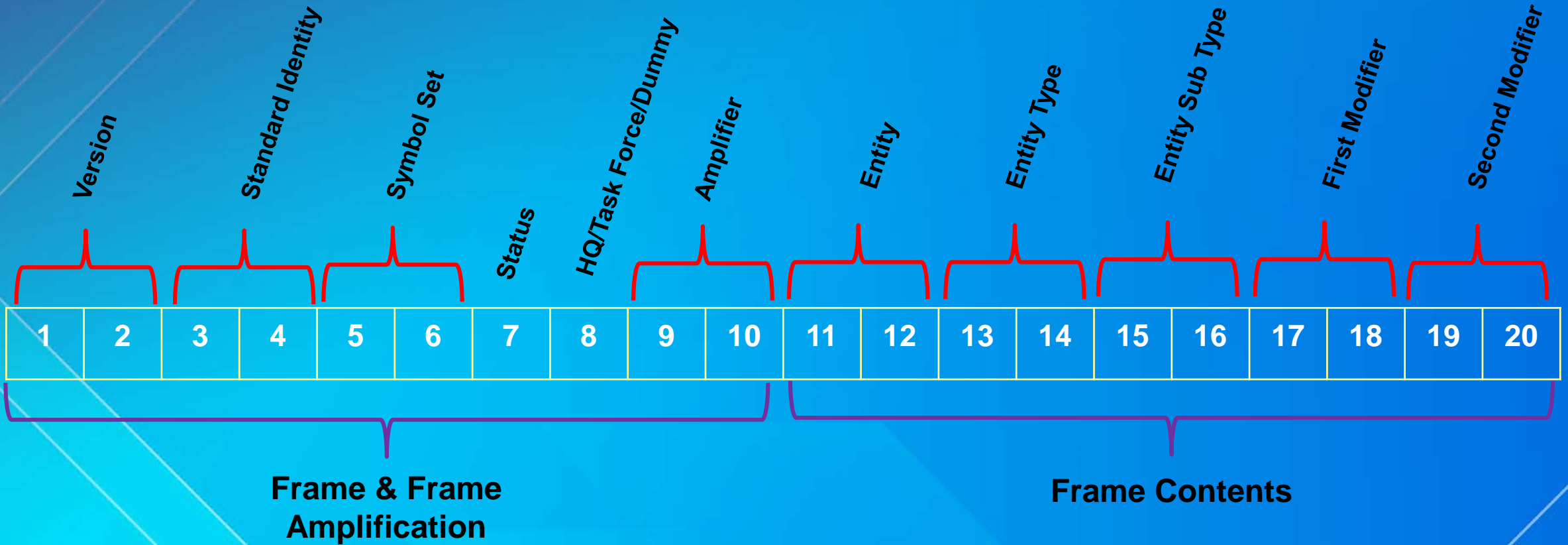




# Control Measures

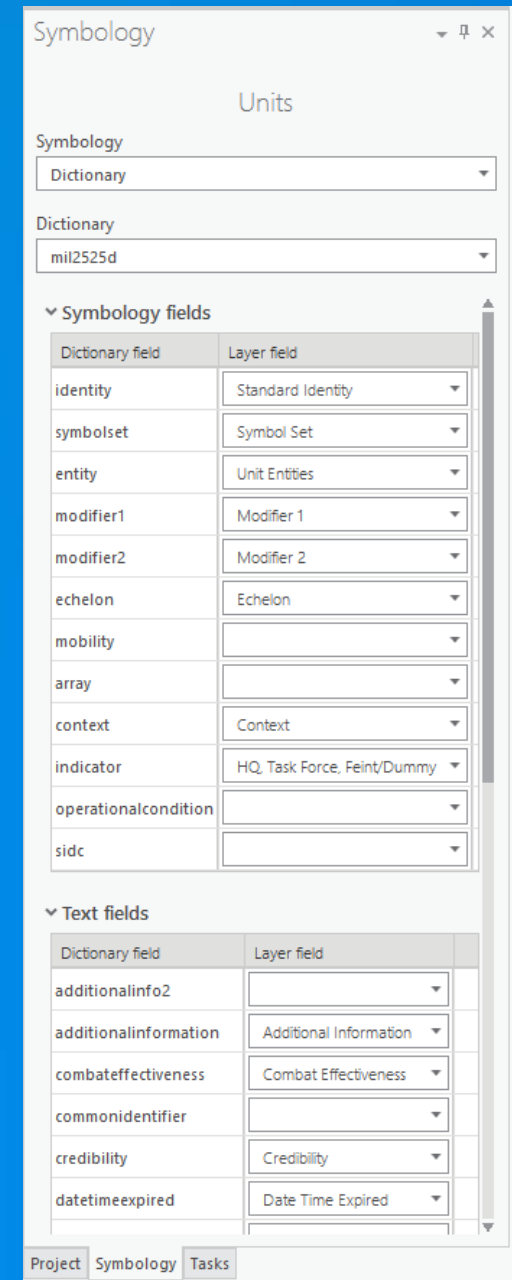


# Identifying a Symbol



# Dictionary Renderer

- Introduced in Runtime
  - `Esri.ArcGISRuntime.Symbology.Specialized Namespace`
  - Used in conjunction with the `SymbolDictionary` and `MessageLayer` classes
  - Optimized for fast search and retrieval of given symbol
- New version developed for ArcGIS Pro
  - Rule-based
  - Multiple dictionary fields (the “keys”)
  - “Values” are used to identify specific symbol elements
  - Elements are “combined” to create a displayed symbol
- New version is being added to Runtime 10.3
  - In the future will work directly on Feature and Graphic layers
- Server development team is working on an implementation



The background features a gradient from dark blue to light blue. On the left side, there are several overlapping geometric shapes: a purple triangle, a yellow triangle containing a faint map outline, and a dark purple triangle. The main title is centered in white text.

# Military Symbology in ArcGIS Pro

## Further Resources

- **GitHub**
  - <https://github.com/Esri>
- **Solutions Website**
  - <http://solutions.arcgis.com/military/>
- **Blogs**
  - <http://blogs.esri.com/esri/arcgis/category/subject-defense/>
- **Twitter**
  - <https://twitter.com/EsriDefense>

# Did We Do A Good Job?

We would like your feedback

- Please visit the following link:

<http://www.esri.com/events/session-rater#/UC/20656>





# Any Questions?

Thank you for attending.



Understanding our world.