翻译内容：4.7.1.2.2-4.7.1.5

**4.7.3 Airbase Ruleset**

4.7.3 航空基地规则集

**4.7.3.1 Airbase Overview**

4.7.3.1 空军基地概述

The airbase model provides combat-ready flights of aircraft in response to direct scramble requests, CAP fill/refill requests, ground-support flights of aircraft to fly to target locations, and scripted takeoffs of flights at a maximum rate that can vary with time. Airbase modeling consists of an airfield, flights of aircraft, and a commander. The functions of an airfield are modeled, rather than its facilities. Air crews are considered to be part of the aircraft. The functionality of the Sector Operations Center has been distributed between the functionality of the airfield and those commanders requiring support: either a Flexible Commander or Ground Attack Commander ruleset. The Flexible Commander ruleset directly requests aircraft from a subordinated airbase and handles the response for that request. A Flexible Commander must command an airbase to request fighter aircraft from that airbase. The Ground Attack Commander can request aircraft from any airbase listed on its airbase list and to which it has a communications link, and this link can be direct or can include relays using communications routing. A Flexible Commander that can evaluate ground targets may request ground attack aircraft from any airbase listed on its airbase list and to which it has a communications link.

空军基地模型提供了战斗准备的飞机飞行，以响应直接争夺请求、CAP填充/补给请求、地面支援的飞机飞行到目标地点，以及脚本化的飞行起飞，最大速率可随时间变化。空军基地建模由机场、飞机的飞行和指挥官组成。模拟的是机场的功能，而不是其设施。空勤人员被认为是飞机的一部分。区作战中心的功能已经在机场的功能和那些需要支持的指挥官之间进行了分配：灵活指挥官或地面攻击指挥官规则集。灵活指挥官规则集直接向下属空军基地请求飞机，并处理该请求的响应。灵活指挥官必须指挥一个空军基地向该空军基地请求战斗机。地面攻击指挥官可以向其空军基地列表中所列的任何空军基地请求飞机，并与之有通信联系，这种联系可以是直接的，也可以包括使用通信路由的中继。能够评估地面目标的灵活指挥官可以向其空军基地名单上所列的任何空军基地请求对地攻击飞机，并与之建立通信链路。

For CAP fill/refill requests, the airbase scrambles aircraft from alert to the CAP identified by the commander. For direct scramble requests, the airbase scrambles fighters on alert to an airborne target’s location or to a target intercept point. Direct scramble requests can be filled using fighters on alert which are still in the airbase queue or fighters which are already in the takeoff queue for CAP fill/refill requests. For scramble requests to ground target locations, the airbase sends flights of ground-attack aircraft to a position requested by a commander. A ground-attack scramble request may be filled by flights of aircraft with the AGAttacker ruleset or with the Fighter ruleset if the evaluate ground targets option has been selected and ground-capable weapons have been deployed on the system. Neither the airbase nor the ground-attack aircraft are required to be commanded by the requesting platform. Scripted aircraft flights are not eligible to fill a request for takeoff by the airbase commander.

对于CAP补给请求，空军基地将战机从警戒状态扰动到指挥官确定的CAP。对于直接争夺请求，空军基地将处于警戒状态的战斗机争夺到空中目标的位置或目标拦截点。直接争夺请求可以使用仍在空军基地队列中的待命战斗机或已经在起飞队列中的战斗机来填补CAP的填补请求。对于地面目标位置的争夺请求，空军基地将对地攻击飞机的飞行送到指挥官请求的位置。如果选择了评估地面目标选项，并且系统上已经部署了可对地攻击的武器，那么对地攻击争夺请求可以由使用AGAttacker规则集或使用Fighter规则集的飞机飞行来填补。空中基地和地面攻击飞机都不需要由请求平台指挥。脚本飞机飞行没有资格填写空军基地指挥官的起飞请求。

Unlike other platforms, airbases are not completely destroyed by conventional weapons. Ordnances impacting on an airbase increase the amount of delay between aircraft flight takeoffs by a specified percentage, and possibly destroy aircraft flights on the airbase. Aircraft flights scheduled for takeoff are destroyed first. If the takeoff queue is empty, then the airbase scramble queues are searched to find the aircraft with the highest alert level. This aircraft is destroyed first. Airbase repairs are modeled by decreasing the takeoff delay, after a specified amount of time, to a minimum of the initial takeoff delay. In the case of a nuclear engagement, the airbase and all the aircraft at the base may be destroyed.

与其他平台不同，空军基地不会被常规武器完全摧毁。撞击空军基地的弹药会使飞机飞行起飞之间的延迟时间按一定比例增加，并可能摧毁空军基地上的飞机飞行。计划起飞的飞机航班首先被摧毁。如果起飞队列是空的，则搜索空军基地争夺队列，寻找警戒等级最高的飞机。这架飞机首先被摧毁。空军基地维修的模式是，在规定的时间后，将起飞延迟降低到初始起飞延迟的最小值。在核交战的情况下，空军基地和基地内的所有飞机都可能被摧毁。

**4.7.3.2 Airbase Operations**

4.7.3.2 空军基地业务

The functionality of the airbase is primarily modeled through the use of multiple queues, representing status of aircraft on alert and planned operations.

空军基地的功能主要是通过使用多个队列来建模的，代表了处于警戒状态的飞机和计划中的作业状态。

**4.7.3.2.1 Airbase Queue Processing**

4.7.3.2.1 航空基地队列处理

Figure 4.7.3-1 illustrates the four distinctive alert queues and scripted takeoff queue that exist on each airbase. A non-scripted aircraft or a flight of non-scripted aircraft deployed at an airbase is placed into one of the four alert queues. The alert queues at the airbase are separated for defensive counter air, ground attack, TBM, and support operations. The criteria for placing aircraft in the alert queues are determined by the ruleset of the aircraft. All aircraft that use the AGAttacker ruleset will be placed into the Ground Attack Operations alert queue.

图4.7.3-1展示了每个空军基地存在的四种不同的警戒队列和脚本起飞队列。部署在空军基地的非脚本飞机或非脚本飞机的飞行会被放入四个警戒队列中的一个。空军基地的警戒队列是分开的，分别用于防御性反空、对地攻击、TBM和支援行动。将飞机放入警戒队列的标准由飞机的规则集决定。所有使用AGAttacker规则集的飞机将被放入地面攻击作战警戒队列。

For all aircraft that use the Fighter ruleset:

适用于所有使用战斗机规则集的飞机。

• If the aircraft has TBM-capable weapons, then the aircraft is placed into the TBM alert queue

- 如果飞机上有可使用TBM的武器，那么该飞机将被列入TBM警报队列。

• If the ground-capable ruleset option is not active, then the aircraft is placed into the Defensive Counter-Air alert queue

- 如果地面能力规则集选项未激活，则飞机将被放入防御性反空警报队列。

• If the ground-capable ruleset option is active, the aircraft has air-capable weapons, and does not have ground-capable weapons then the aircraft is placed into the Defensive Counter-Air alert queue

- 如果地面能力规则集选项激活，飞机有空中能力的武器，没有地面能力的武器，那么飞机就会被放入防卫反空警戒队列。

• If the ground-capable ruleset option is active and the aircraft has ground-capable weapons, then the aircraft is placed into the Ground Attack Operations alert queue

- 如果地面能力规则选项处于激活状态，且飞机拥有地面能力武器，那么飞机将被放入地面攻击行动警报队列中

• If the ground-capable ruleset option is active and the aircraft has no weapons, the aircraft is placed into the Ground Attack Operations alert queue

- 如果地面能力规则集选项处于激活状态，且飞机没有武器，则飞机将被放入地面攻击行动警报队列。

All aircraft that do not use the Fighter or AGAttacker rulesets are placed into the Support queue. Platforms on alert in the dynamic Support Queue can be scrambled only by using the PIC Platform Relocation Command described in Section 9.3.2

所有不使用 "战斗机 "或 "AGAttacker "规则集的飞机都会被放入 "支援队列"。动态支援队列中处于警戒状态的平台只能通过使用第9.3.2节中描述的PIC平台重新定位命令进行扰动。

The scripted aircraft wait in the airbase’s scripted queue until its scripted time to takeoff has been reached. The scripted aircraft is then placed in the takeoff queue in the order of takeoff prioritization for the airbase. An aircraft becomes scripted when the Scripted Takeoff button on the Edit Platform window is selected. The scripted time for the aircraft is set by the value placed for the On-Time for the first waypoint given to the aircraft in the Edit Platform window.

脚本飞机在空军基地的脚本队列中等待，直到达到其脚本的起飞时间。脚本飞机会按照空军基地的起飞优先级顺序被放入起飞队列中。当选择 "编辑平台 "窗口中的 "脚本起飞 "按钮时，飞机就成为脚本飞机。飞机的脚本时间由编辑平台窗口中给飞机的第一个航点的On-Time的值来设置。

The user interface provides a display of the aircraft located at the airbase, their alert levels, and their missions as determined by their rulesets and weapons loadout. The airbase information display shows a list for each of the separate alert queues: 1) defensive counter air, 2) ground-attack operations, 3) TBM operations, and 4) Support Queue The scripted queue is treated as single queue, but to display the information, it is broken into three sections: 1) scripted defensive counter air, 2) scripted ground-attack operations, 3) scripted TBM operations, and 4) scripted Support operations..

用户界面提供了位于空军基地的飞机的显示，它们的警戒等级，以及由它们的规则集和武器装备决定的任务。空军基地信息显示显示了每个独立警戒队列的列表：1）防御反空，2）对地攻击行动，3）TBM行动，4）支援队列 脚本队列被视为单一队列，但为了显示信息，它被分成三个部分。1）防守反空脚本、2）对地攻击脚本、3）TBM脚本、4）支援脚本。

**4.7.3.2.2 Airbase Alert Levels**

4.7.3.2.2 空军基地警戒级别

The alert-level structure for the airbase is determined by the scramble times of the non-scripted aircraft flight leaders deployed at the airbase. These scramble times are specified as a mean and sigma value, to provide for randomization of the flight’s time-to-go. Because the alert levels are created at the aircraft level, but multiple aircraft may be at the same alert level on base, all aircraft deployed at the same base in the same queue which have the same scramble time mean values are required to use the same distribution statistics. During initialization, the scramble time distribution statistics for the first platform in a particular alert level will be used for all platforms placed into the alert level. As platforms are evaluated to determine which alert level they should go into, the platform’s scramble time mean is truncated to an integer value and compared to all existing alert level truncated integer mean values. If the platform’s mean value is equal to an existing mean value, the platform is placed into the already established alert level having that mean value. The distribution values are not truncated when stored for each slot of the alert level. Rather, the truncation to an integer value is only done for the mean comparison to avoid constructing multiple alert levels within less than one second of each other. For platforms having distribution statistics inconsistent with the alert level they are place into, error messages are written to the ScenarioErrors.txt file to indicate the names of the platform having inconsistent statistics and the platform whose statistics were used. For those platforms having scramble time distributions inconsistent with their specified alert level, actions are logged to playback to provide the actual distribution used by the platform during the simulation run. This allows playback to construct an accurate representation of alert levels and alert level slots.

空军基地的警戒级别结构是由部署在空军基地的非脚本飞机飞行负责人的扰动时间决定的。这些扰动时间被指定为平均值和西格玛值，以提供飞行时间的随机化。由于警戒级别是在飞机级别上创建的，但基地内可能有多架飞机处于同一警戒级别，因此要求部署在同一基地同一队列中的所有具有相同争夺时间均值的飞机使用相同的分布统计。在初始化过程中，特定警戒级别中第一个平台的争夺时间分布统计将用于所有放入警戒级别的平台。当评估平台以确定它们应该进入哪个警报级别时，平台的争夺时间平均值将被截断为一个整数值，并与所有现有的警报级别截断的整数平均值进行比较。如果平台的均值等于现有的均值，则将平台放入已经建立的具有该均值的警戒级别。在为警戒级别的每个槽位存储时，分布值不会被截断。相反，截断为整数值只针对均值比较进行，以避免在不到一秒的时间内构建多个警戒级别。对于具有与其被放入的警报级别不一致的分布统计数据的平台，错误信息会被写入ScenarioErrors.txt文件，以指示具有不一致统计数据的平台和其统计数据被使用的平台的名称。对于那些具有与其指定的警报级别不一致的争夺时间分布的平台，行动被记录到回放，以提供平台在模拟运行期间使用的实际分布。这使得回放能够构建警报级别和警报级别槽的准确表示。

Time-to-go is defined as the minimum time from the current time for aircraft to leave the airbase. The time-to-go for the aircraft is originally set to the mean value of its scramble time. The time-to-go of all aircraft is decremented to account for time passage. The time is decremented until an aircraft’s time-to-go reaches the mean of its current alert level and it will not be decremented further until a command is sent to the airbase requesting an aircraft from the queue. Once a command is received, the aircraft at the highest alert level—i.e., the shortest time-to-go—is then moved into the takeoff queue and its alert level is set to zero. Its actual time-to-go is set by making a random draw. The mean value used is the aircraft’s current time-to-go and the sigma value used is that specified for its alert level when the command was received. Even though the aircraft is in the takeoff queue, the aircraft will not takeoff until its time-to-go has reached zero. The other aircraft in the queue will be moved up an alert level and their time-to-go may begin decrementing accordingly. If more than one flight is needed to fulfill the scramble request, then the additional flights are placed into the takeoff queue. Their actual time-to-go will also be calculated by a random draw using their current time-to-go and their alert level sigma. These additional flights must wait for their time-to-go limit to expire before they can take off. If randomness has been eliminated, the mean value for the alert level will always be used as the aircraft’s time-to-go.

"到达时间 "是指飞机从当前时间起离开空军基地的最短时间。飞机的 "到达时间 "最初设定为其争夺时间的平均值。所有飞机的到达时间都会被递减，以考虑到时间流逝。时间递减到某架飞机的争抢时间达到其当前警戒级别的平均值为止，直到向空军基地发出命令，要求从队列中取出某架飞机时，时间才会进一步递减。一旦收到命令，处于最高警戒级别的飞机--即最短的起飞时间--就会被移入起飞队列，其警戒级别被设置为零。它的实际起飞时间是通过进行随机抽签来设定的。所用的平均值是飞机当前的起飞时间，所用的sigma值是收到命令时为其指定的警戒级别。即使飞机在起飞队列中，在其起飞时间达到零之前，飞机不会起飞。队列中的其他飞机将被提升一个警戒级别，其起飞时间也会相应地开始递减。如果需要多于一个航班来完成争抢请求，那么额外的航班将被放入起飞队列中。他们的实际起飞时间也将根据他们当前的起飞时间和警戒等级sigma随机抽签计算。这些额外的航班必须等待其起飞时间限制到期后才能起飞。如果随机性已被消除，警戒等级的平均值将始终作为飞机的到达时间。

Figure 4.7.3-2(a) shows the initial alert structure for one of the alert queues at an airbase. The chart shows the alert level in seconds, the flight identification letter, and the time-to-go for each flight in the queue. As shown, flights A, B, and C are at the same alert level of 300 sec, flight D is at the 120-sec alert level, flight E is at the 60-sec alert level, while flight F is at the 0 alert level. As previously stated, the time-to-go for the aircraft in the chart is not decremented when it has reached its alert level time until a command is sent to the airbase requesting an aircraft from a particular queue. Therefore, this initial alert structure remains at this setup, no matter how much time has passed, until a request for aircraft from the queue is received from a commander.

图4.7.3-2(a)显示了一个空军基地的一个警报队列的初始警报结构。图中显示了队列中每个航班的警戒级别（以秒为单位）、航班标识字母和进入时间。如图所示，航班A、B、C的警戒级别相同，为300秒，航班D的警戒级别为120秒，航班E的警戒级别为60秒，而航班F的警戒级别为0。如前所述，当图中的飞机达到警戒级别时间后，直到向空军基地发出指令，要求从某一队列中起飞的飞机时，图中飞机的起飞时间才会递减。因此，这个初始警戒结构无论过了多少时间，都会保持在这个设置上，直到收到指挥官对队列中飞机的请求。

Figure 4.7.3-2(b) shows the alert queue after two requests for aircraft from this particular queue have been received from a commander. Flight F moves into the takeoff queue at his user-defined priority level and waits for his takeoff interval. Flight E moves into the takeoff at his user-defined priority level to wait for his time-to-go time of 60 sec to expire and his takeoff interval. The aircraft remaining in the queue at the airbase are moved into the higher priority alert queues to replace the aircraft requested by the commander.

图4.7.3-2(b)显示的是在收到指挥官对该特定队列中的飞机提出的两个请求后的警报队列。航班F以其用户定义的优先级进入起飞队列，等待其起飞间隔。航班E以其用户定义的优先级进入起飞，等待他的60秒起飞时间到期和起飞间隔。留在空军基地队列中的飞机会被移入更高优先级的警戒队列中，替换指挥员请求的飞机。

Figure 4.7.3-2(c) shows the alert queue after 60 sec have passed. Flight E’s time-to-go has expired and it is now free to leave the airbase at its takeoff interval. In the queue, flight A’s time-to-go will not be decremented for the passage of time because the time-to-go of an aircraft in an alert queue cannot fall below its alert level. However, the time-to-go times for flights B, C, and D are decremented to account for the 60-sec time passage, since their time-to-go level has not reached the queue’s alert level. If any aircraft return to the airbase, they are refueled, rearmed, and placed back into the proper airbase queue in one of the available alert level slots.

图4.7.3-2(c)为60秒后的警报队列。图4.7.3-2(c)为60秒后的警戒队列，E航班的起飞时间已过，现在可以在起飞时间间隔内自由离开空军基地。在队列中，A航班的起飞时间不会因为时间的流逝而减少，因为在警戒队列中飞机的起飞时间不能低于其警戒等级。但是，B、C、D航班的去程时间会因60秒的时间流逝而递减，因为它们的去程时间水平还没有达到队列的警戒水平。如果有飞机返回空军基地，它们将被重新加油，重新武装，并被放回空军基地的适当队列中的一个可用的警戒级别的位置。

**4.7.3.2.3 Aircraft Cycling**

4.7.3.2.3 飞机循环飞行

When an aircraft returns to an airbase, all engaged targets are cleared. If the aircraft is a fighter, then any engagements started but not completed during RTB are reported and cleared. Next, a delay for turnaround time is applied. This turnaround allows the aircraft to be rearmed and refueled. If the weapon is a laser, the laser fuel is set to its maximum value. The turnaround time is specified as a standard distribution model in order to randomize the time needed to perform these actions. Turn delays may be defined on the airbase ruleset for individual aircraft systems or classes for each partial damage level associated with the scenario in order to specify the turnaround time needed for that type of aircraft based on its damage level at the time it lands. A default turn delay on the airbase platform will be used if no system specific turn delays have been defined for the ruleset. When an aircraft lands at base, a random draw is made from either the default turn delay or from the distribution model defined for the aircraft system at its current damage level. If a turn delay for its current damage level has not been defined, the delay for the next lowest damage level will be used. If randomness has been eliminated, the constant mean value is used as the turnaround time. The actual turn delay is logged for post processing purposes. If turn delays have been defined for the ruleset, but the landing aircraft’s system or class is not in the table, the airbase is not capable of returning that aircraft to its scramble queues. The aircraft is set to inactive and will no longer be evaluated for assignment by its commander.

当飞机返回空军基地时，所有交战目标均被清除。如果飞机是战斗机，那么任何在RTB期间开始但未完成的交战都会被报告和清除。接下来，将对转场时间进行延迟。这个周转时间允许飞机重新装备和加油。如果武器是激光，则激光燃料被设置为最大值。转弯时间被指定为一个标准分布模型，以便随机化执行这些动作所需的时间。转弯延迟可以在空军基地规则集上为单个飞机系统或与场景相关的每个部分损伤等级定义，以便根据飞机降落时的损伤等级指定该类型飞机所需的转弯时间。如果没有为规则集定义特定系统的转弯延迟，则将使用空军基地平台的默认转弯延迟。当一架飞机降落在基地时，将从默认的转弯延迟或从为飞机系统定义的分布模型中随机抽取其当前伤害等级。如果没有定义其当前损伤等级的转弯延迟，则将使用下一个最低损伤等级的延迟。如果随机性已被消除，则使用常数平均值作为转弯延迟。实际的转身延迟会被记录下来，以备后处理之用。如果已经为规则集定义了转弯延迟，但着陆飞机的系统或等级不在表中，则空军基地无法将该飞机返回其争夺队列。该飞机被设置为不活动，不再由其指挥官评估分配。

If the aircraft can be refitted by this airbase, the aircraft is then assigned to the highest available slot in the scramble queue according to its randomized turnaround time, An aircraft that has the Fighter or AGAttacker ruleset will be placed in the appropriate scramble queue base on the aircraft’s weapons loadout. An aircraft that has a ruleset other than Fighter or AGAttacker will be placed in the Support scramble queue. The aircraft’s initial time-to-go is set to the randomized turnaround time plus the mean setup time from its Tactical Operations phase. The setup time models a minimum time needed to complete FDSC inventory repairs. FDSC/Inventory modeling is described in MM Section 4.15.3. All aircraft in the selected scramble queue whose time to go is currently higher than its alert level are reordered based on the amount of time remaining until it reaches its alert level. This allows aircraft which return to base in a less damaged state, or whose system or class type allows quicker turn around, to move ahead of aircraft already in the queue that require longer repair times. If an open alert level slot is not available, then the aircraft is placed at the end of the scramble queue with an alert time of the highest alert level. The aircraft’s final mean time-to-go is then set by taking the mean time of the aircraft’s selected alert level and adding in its initial turnaround time.

如果该飞机可以由该空军基地进行改装，那么该飞机将根据其随机周转时间被分配到争夺战队列中的最高可用位置，拥有战斗机或AGAttacker规则的飞机将根据该飞机的武器装备被安排到相应的争夺战队列中。战斗机或AGA攻击机以外的其他规则的飞机将被放入支援机队列中。飞机的初始进入时间设置为随机周转时间加上战术操作阶段的平均设置时间。设置时间为完成FDSC库存维修所需的最短时间建模。FDSC/库存建模在MM第4.15.3节中描述。在选定的争夺队列中，所有飞机的出发时间目前高于其警戒级别的，都将根据其达到警戒级别前的剩余时间重新排序。这使得以较少的损坏状态返回基地的飞机，或其系统或等级类型允许较快的转场的飞机，可以走在已经在队列中的需要较长修理时间的飞机前面。如果没有空闲的警戒级别空档，则将飞机放在争抢队列的最后，警戒时间为最高警戒级别。然后根据飞机所选警戒级别的平均时间，再加上飞机的初始转场时间，设定飞机的最终平均转场时间。

**4.7.3.2.4 Scramble Request Limit Processing**

4.7.3.2.4 争夺请求限制处理方法

The user is able to specify a maximum number of scramble requests that can be filled during the execution of the scenario. The maximum number of scramble requests limits the number of scramble requests allowed for each of the scramble request categories. These limits represent the number of aircraft available to the airbase and the number of missions each aircraft is allowed to perform. The limits are specifiable as a function of TBM, defensive air, and ground-attack scramble requests. The value for the number of scramble requests is an integer with a value between 0 and 9999. The default value is 100 scramble requests for each of the scramble queues. Once this scramble request limit has been reached, the airbase CANTCO’s any request for aircraft from the corresponding alert queue

用户能够指定在场景执行过程中可以填写的最大扰动请求数。争夺请求的最大数量限制了每个争夺请求类别允许的争夺请求的数量，这些限制代表了空军基地可用的飞机数量和每架飞机允许执行的任务数量。这些限制代表了空军基地可用的飞机数量和每架飞机允许执行的任务数量。这些限制可以指定为TBM、防卫性空中和地面攻击争夺请求的函数。扰频请求数的值是一个整数，其值在0到9999之间。默认值是每个扰动队列的扰动请求数为100。一旦达到这个扰频请求上限，空军基地就会从相应的警戒队列中CANTCO任何飞机的请求。

**4.7.3.2.5 Airbase Takeoff Queue**

4.7.3.2.5 空军基地起飞队列

The takeoff queue controls the launch intervals of the aircraft once they meet the requirements for moving out of their particular alert queue. All flights that leave the airbase move through the takeoff queue. The aircraft must stay in the takeoff queue until their time-to-go is reached and the next available takeoff slot becomes available.

起飞队列控制着飞机的发射间隔，一旦飞机满足了移出其特定警戒队列的要求。所有离开空军基地的航班都要经过起飞队列。飞机必须在起飞队列中停留，直到达到其起飞时间，并且下一个可用的起飞空档出现。

**4.7.3.2.6 Takeoff Prioritization**

4.7.3.2.6 起飞优先权的确定

The user selects the prioritization scheme for the takeoff queue. The default prioritization from highest to lowest is TBM scramble requests, defensive air scramble requests, ground-attack operations scramble requests, and scripted takeoffs. Two or more of the scramble queues can have the same prioritization level, thus not allowing one scramble queue to have priority over any other. The priority for each of the queues can be chosen from high to low. Aircraft in the Support scramble queue will always use the takeoff prioritization that is defined for Scripted Takeoffs.

用户选择起飞队列的优先级方案，默认的优先级从高到低是TBM争夺请求、防御性空中争夺请求、地面攻击行动争夺请求和脚本起飞。默认的优先级从高到低分别是TBM扰频请求、防御性空中扰频请求、对地攻击行动扰频请求和脚本起飞。两个或多个争夺队列可以具有相同的优先级，从而不允许一个争夺队列优先于任何其他队列。每个队列的优先级可以从高到低选择。支持争夺队列中的飞机将始终使用为脚本起飞定义的起飞优先级。

**4.7.3.2.7 Airbase Takeoff Interval**

4.7.3.2.7 空军基地起飞时间间隔

The takeoff interval for an airbase is the amount of time from when one flight of aircraft can leave the airbase until the next flight is allowed to leave the airbase. The takeoff interval is specified as a mean and sigma in order to randomize the time between scramble actions. As each flight takes off from base, a random draw is made to determine the next flight’s actual takeoff time. If randomness has been eliminated, the constant mean value is used as the takeoff interval. The takeoff interval is increased when damage occurs to an airbase and is decreased when a certain amount of time has passed since the damage to the airbase occurred. This is explained further in Section 4.7.3.3.1.2, Airbase Damage and Delay Calculation.

一个空军基地的起飞间隔是指从一个航班可以离开空军基地到下一个航班被允许离开空军基地的时间。为了使争夺行动之间的时间随机化，起飞间隔被指定为平均值和西格玛。当每个航班从基地起飞时，随机抽签确定下一个航班的实际起飞时间。如果随机性已被消除，则用恒定的平均值作为起飞间隔。当空军基地发生损坏时，起飞间隔时间会增加，当空军基地损坏发生后经过一定时间后，起飞间隔时间会减少。这一点在4.7.3.3.1.2节 "空军基地损伤和延误计算 "中进一步说明。

**4.7.3.2.8 Scripted Takeoffs**

4.7.3.2.8 脚本起飞

Scripted takeoffs leave the scripted airbase queue at the aircraft’s scripted takeoff time and enter the takeoff queue. The scripted aircraft are placed in the takeoff queue according to the priority level of the scripted aircraft at this airbase. Once the scripted aircraft have entered the airbase takeoff queue, these aircraft are not treated any differently than any other aircraft in the takeoff queue at the time. An aircraft becomes scripted when the scripted takeoff button on the edit platform window is selected. The scripted time for the aircraft is the on-time for the first waypoint given to the aircraft in the window.

脚本起飞在飞机的脚本起飞时间离开脚本空军基地队列，进入起飞队列。脚本飞机根据脚本飞机在该空军基地的优先级进入起飞队列。一旦脚本飞机进入空军基地起飞队列，这些飞机的待遇与当时起飞队列中的其他飞机没有任何区别。当编辑平台窗口的脚本起飞按钮被选中时，飞机就成为脚本飞机。飞机的脚本化时间是窗口中给飞机的第一个航点的准点时间。

**4.7.3.3 Airbase Battle Management Phases**

4.7.3.3 空军基地战斗管理阶段

The Airbase ruleset has two battle management phases: Target Select and User Rules.

航空基地规则集有两个战斗管理阶段。目标选择和用户规则。

**4.7.3.3.1 Airbase Target Select Phase**

4.7.3.3.1 空军基地目标选择阶段

The majority of the airbase performance parameters are site-specific and are on the Edit/Deploy Platform window. The airbase damage management is responsible for assessing the extent of the damage, enabling the airbase if damage is not critical, and repairing the airbase if damage is critical. The airbase’s target select phase is used to launch the aircraft flights at their scheduled takeoff times. The phase execution timing is independent of the start and repeat times on the phase window. Turn delays based on the aircraft’s system or class type may be defined on the target select phase to model the different times needed to refuel and reload various types of aircraft based on their damage level at the time they land. If system-specific timings are defined, the airbase is limited to being able to turn around only those systems and classes of aircraft on its list.

空军基地的性能参数大部分是针对场地的，在EditDeploy Platform窗口中。空军基地损伤管理负责评估损伤程度，如果损伤不严重则启用空军基地，如果损伤严重则修复空军基地。空军基地的目标选择阶段用于在预定的起飞时间启动飞机飞行。阶段执行时间与阶段窗口上的开始和重复时间无关。可以在目标选择阶段上定义基于飞机系统或等级类型的转弯延时，以模拟各种类型的飞机在降落时根据其损伤程度所需的不同时间进行加油和重装。如果定义了特定系统的时间，则空军基地只能对其清单上的那些系统和飞机类别进行转场。

**4.7.3.3.1.1Launching Flights of Aircraft**

4.7.3.3.1.1飞机的发射飞行

The airbase uses the Target Select phase to launch flights of aircraft from the airbase. Three conditions are tested before airbase operations can begin. If there are no aircraft flights scheduled for takeoff, the phase is exited without rescheduling. If the airbase is down from an ordnance hit or it is too early for any flights to take off, the phase is rescheduled after a delay for the time the airbase will be able to launch the next flight.

空军基地利用目标选择阶段，从空军基地发射飞机飞行。在空军基地作业开始前，要测试三个条件。如果没有计划起飞的飞机航班，则退出该阶段，不重新安排时间。如果空军基地被军械击中而瘫痪，或对任何航班来说起飞时间太早，则在延迟空军基地能够发射下一个航班的时间后，重新安排该阶段。

If all tests are passed, the airbase updates the scramble time for all aircraft flights not scheduled to take off, updates the takeoff time for aircraft that have been scheduled to take off, and launches one flight that is scheduled for the current takeoff time. When an aircraft flight is launched from the airbase, the aircraft flight is either flown to its commanded CAP position, to its commanded target, or through its scripted waypoints. When a fighter flight is direct scrambled to a fuzzy vector position, the aircraft is vectored to the last position received from the commander in either the assignment or a vector update. Any flight leaving the airbase is immediately available for commanded or self-assignments, depending on the appropriate action for the aircraft type. The airbase’s phase is rescheduled if any flights remain in the queue for takeoff.

如果所有的测试都通过了，空军基地就会更新所有未安排起飞的飞机航班的争夺时间，更新已安排起飞的飞机的起飞时间，并发射一个安排在当前起飞时间的航班。当飞机航班从空军基地起飞时，飞机航班要么飞往其指挥的CAP位置，要么飞往其指挥的目标，要么通过其脚本航点。当战斗机飞行被直接扰动到模糊的矢量位置时，飞机飞行会被矢量到指挥员在分配或矢量更新中收到的最后位置。任何离开空军基地的飞行都可以立即进行指令分配或自分配，这取决于飞机类型的适当行动。如果有任何航班仍在起飞队列中，则重新安排空军基地的阶段。

A fighter waiting in the takeoff queue as a result of a direct scramble may receive a stop message before leaving the base. In this case, the fighter is recycled as described in Subsection 4.7.3.2.3. However, the turnaround time is not applied to its new time to go, as the fighter never actually left the base.

因直接争夺而在起飞队列中等待的战斗机，在离开基地前可能会收到停止信息。在这种情况下，该战斗机按4.7.3.2.3小节所述进行回收。但是，周转时间不适用其新的起飞时间，因为该战斗机实际上从未离开过基地。

**4.7.3.3.1.2Airbase Damage and Delay Calculation**

4.7.3.3.1.2 航空基地损失和延迟计算

The intercept phases (i.e., kill assessment phases) for hostile air-to-surface and surface-to-surface platforms use the routines that assess damage to an airbase. For conventional weapons, these intercept phases first make a random draw from a uniform distribution and compare this with the probability of kill of the impacting weapon. This draw is used to determine if the airbase has been hit. If the airbase is hit, the damage assessment calculations are performed. If randomness is eliminated, the impacting weapon will always hit the airbase.

敌对空对地和地对地平台的拦截阶段(即杀伤力评估阶段)使用评估空军基地所受损害的常规程序。对于常规武器，这些拦截阶段首先从均匀分布中随机抽签，并将其与撞击武器的杀伤概率进行比较。这个抽签是用来确定空军基地是否被击中。如果空军基地被击中，则进行损伤评估计算。如果消除随机性，撞击武器将始终击中空军基地。

The first time the airbase is hit, the airbase is shut down for the length of time specified by the user for the shock delay. This shutdown models the confusion caused by the initial hit on the airbase. The shock delay is specified as a mean and sigma in order to randomize the time of confusion. When the first weapon impacts at the airbase, a random draw is made to determine the actual shock delay. If randomness has been eliminated, the constant mean value is used as the shock delay.

空军基地第一次被击中时，空军基地会在用户指定的冲击延迟时间内关闭。这种关闭模式是模拟空军基地首次被击中所造成的混乱。冲击延迟被指定为平均值和西格玛，以便随机化混乱时间。当第一枚武器撞击空军基地时，随机抽签来确定实际的冲击延迟。如果随机性已被消除，则使用恒定的平均值作为冲击延迟。

The damage-assessment function evaluates whether the impacting weapon caused critical damage. Critical damage is defined as damage to the C2 area, the turnaround facility area, or the runway/taxiway/ramp area of the airbase. Each of these areas is modeled as a fraction of the total area of the airbase. The probability of damaging one of these areas is the sum of the individual fractional areas: i.e., the percentage of the total airbase that contains critical assets. A random draw from a uniform distribution is compared with this total area to determine if critical damage has occurred. If no critical damage has occurred, no damage is assessed to the airbase. If randomness is eliminated, the airbase will not incur any critical damage. If critical damage has occurred, the airbase’s efficiency in scrambling aircraft is affected, modeled as an increase in the airbase’s takeoff interval (TOI). The user-specified takeoff interval increase is the fraction of the current takeoff delay time that is added to the takeoff interval time after a weapon has impacted a critical area of the airbase. The TOI increase is a fractional number greater than or equal to 0.0. The takeoff interval increase is applied to both the mean and sigma values of the current takeoff interval as:

损害评估功能评估撞击性武器是否造成了严重损害。关键损害被定义为对空军基地的C2区域、周转设施区域或跑道/滑行道/匝道区域的损害。这些区域中的每一个都被建模为空军基地总面积的一部分。破坏其中一个区域的概率是各个部分区域的总和：即包含关键资产的空军基地总面积的百分比。从均匀分布中随机抽取一个区域与这个总区域进行比较，以确定是否发生了临界破坏。如果没有发生临界破坏，则不对空军基地进行破坏评估。如果随机性被消除，则空军基地不会发生任何关键性破坏。如果发生了临界损害，则会影响空军基地扰动飞机的效率，模型化为空军基地起飞间隔（TOI）的增加。用户指定的起飞间隔增加是指武器影响到空军基地的关键区域后，将当前起飞延迟时间的分数加到起飞间隔时间中。TOI增加量是一个大于或等于0.0的小数。起飞间隔时间增加量适用于当前起飞间隔时间的平均值和西格玛值，即：

The repairs to the airbase are completed for each bomb attack after the user-defined recovery time has passed. The recovery time is specified as a mean and sigma in order to randomize the time needed to recover from the bomb attack. As each weapon impacts, a random draw is made to determine the actual recovery time, and the airbase repair is scheduled for that time. Recovery time will be limited to values greater than or equal to 0. If randomness has been eliminated, the constant mean value is used as the recovery time. At the time repairs are completed, the TOI mean and sigma values are decreased by the amount represented by a single percentage increase in the TOI. This is limited to guarantee that the TOI is never less than the specified minimum TOI.

每次炸弹袭击后，在用户定义的恢复时间过后，完成对空军基地的修理。恢复时间被指定为平均值和西格玛，以便随机确定从炸弹攻击中恢复所需的时间。当每次武器撞击时，随机抽签确定实际恢复时间，并按该时间安排空军基地维修。恢复时间将被限制在大于或等于0的值，如果随机性已被消除，则使用恒定的平均值作为恢复时间。在维修完成时，TOI均值和西格玛值将按TOI的单个百分比增加所代表的量减少。这是有限的，以保证TOI永远不会小于指定的最小TOI。

Given that critical damage has been achieved, a determination of whether aircraft were destroyed is made. A random draw from a uniform distribution is compared with the probability of aircraft destruction. If aircraft were destroyed, the flight at the top of the queue for takeoff is destroyed. If randomness is eliminated, no aircraft will be destroyed.

既然已经达到临界损害，就要确定飞机是否被摧毁。从均匀分布中随机抽出一架飞机，与飞机被毁的概率进行比较。如果飞机被摧毁，则排在起飞队列最前面的航班被摧毁。如果随机性被消除，则没有飞机被摧毁。

Figure 4.7.3-3 shows how an airbase recovers from damage and how this recovery time affects the airbase’s takeoff interval. The shock delay time for Figure 4.7.3-3 is 120 sec, the takeoff interval increase is 0.5, and the damage recovery time is 60 sec.

图4.7.3-3显示了一个空军基地如何从损伤中恢复，以及这个恢复时间对空军基地起飞间隔的影响。图4.7.3-3的冲击延迟时间为120秒，起飞间隔增加0.5，损伤恢复时间为60秒。

In the example, a bomb impacts the airbase at 30 sec, causing a shock delay of 120 sec to the airbase. The airbase will be operational again at the simulation time of 150 sec. The takeoff interval for the airbase increases from 60 sec to 90 sec. This is found using the formula for calculating an increase in the TOI from an impacting bomb. At the simulation time of 50 sec, a second bomb impacts the airbase. This second bomb does not cause a shock delay to occur but does increase the takeoff interval time for the airbase from 90 sec to 135 sec. The damage recovery time for the airbase is 60 sec, so at the simulation time of 90 sec, the airbase has recovered from the first bomb attack. The takeoff interval decreases from a 135 sec back to 90 sec. At the simulation time of 100 sec, a third bomb impacts the base. This impact causes the takeoff interval to increase back to 135 sec; again, this number is calculated using the formula given for increasing the TOI due to a bomb impact. At simulation time 110 sec, the base recovers from the second bomb attack and the takeoff interval returns to 90 sec. At simulation time 150 sec, the aircraft has recovered from the shock of the first bomb impacting the airbase. At simulation time 160 sec, the base has recovered from the third bomb’s impact and the takeoff interval has returned to its original value of 60 sec. After the initial shock delay from the first bomb attack has expired, an aircraft in the takeoff queue will leave the airbase after the takeoff interval has expired. In Figure 4.7.3-3, the shock delay time for the first bomb expires at 150 sec. The first aircraft will leave the airbase at 150 sec plus the takeoff interval time of 90 sec, or at simulation time 240 sec.

在本例中，一枚炸弹在30秒时撞击空军基地，对空军基地造成120秒的冲击延迟。在模拟时间为150秒时，空军基地将再次投入使用。空军基地的起飞间隔时间由60秒增加到90秒。这是用冲击弹增加TOI的计算公式计算出来的。在模拟时间为50秒时，第二枚炸弹撞击空军基地。这第二枚炸弹没有引起冲击延迟，但确实使空军基地的起飞间隔时间从90秒增加到135秒。空军基地的损伤恢复时间为60秒，因此在模拟时间90秒时，空军基地已经从第一枚炸弹攻击中恢复过来。起飞间隔从135秒回落到90秒。在模拟时间100秒时，第三枚炸弹撞击了基地。这次撞击使起飞间隔增加到135秒；同样，这个数字是用炸弹撞击导致的TOI增加的公式计算的。在模拟时间110秒时，基地从第二次炸弹攻击中恢复，起飞间隔恢复到90秒。在模拟时间150秒时，飞机已经从第一枚炸弹撞击空军基地的冲击中恢复过来。在模拟时间160秒时，基地已经从第三枚炸弹的冲击中恢复过来，起飞间隔恢复到原来的60秒值。在第一枚炸弹攻击的初始冲击延时过后，起飞队列中的飞机将在起飞间隔期满后离开空军基地。在图4.7.3-3中，第一枚炸弹的冲击延迟时间在150秒时到期。第一架飞机将在150秒加上起飞间隔时间90秒，或在模拟时间240秒时离开空军基地。

For nuclear engagements, PDCALC is used to assess damage to the airbase. Under this methodology, the entire airbase is killed, including all of the aircraft at the airbase.

对于核交战，采用PDCALC来评估对空军基地的损害。根据这种方法，整个空军基地都被炸毁，包括空军基地的所有飞机。

**4.7.3.3.2 Airbase User Rules Phase**

4.7.3.3.2 空军基地用户规则阶段：

The airbase can execute the User Rules phase in response to events in the scenario, including the death of its commander, or the loss or regaining of its commander through communications checks. It can respond by choosing an alternate commander. The use of User Rules is described in Section 4.12.

空军基地可以针对场景中的事件执行用户规则阶段，包括指挥官的死亡，或通过通信检查失去或重新获得指挥官。它可以通过选择一个替代指挥官来应对。用户规则的使用在第4.12节介绍。

**4.7.3.4   Airbase Received Message Processing**

4.7.3.4 空军基地收到的信息处理

The airbase receives two different types of commanded assignments: the multiple assignment, which is used for direct scramble requests, and the general assignment, which is used for all other scramble requests. The airbase processes a stop command from its commander for the direct scramble request. The airbase can also process communications checks.

空军基地收到两种不同类型的指令分配：多重分配，用于直接争夺请求；一般分配，用于所有其他争夺请求。空军基地处理来自其指挥官的停止指令，用于直接扰频请求。空军基地还可以处理通信检查。

**4.7.3.4.1  Airbase Commanded Assignment**

4.7.3.4.1 空军基地的指挥分配

There are multiple sources of scramble requests. If the commander of the airbase is using a Flexible Commander ruleset, aircraft will be requested to fill/refill CAPs. This can be in response to perceived aircraft or TBM threat. A commander using the Ground Attacker Commander or ground-capable Flexible Commander ruleset can also issue scramble requests to ground target locations. These ground attack requests can come from any commander which is on a network with the airbase and that also has the airbase listed on its airbase list.

争夺请求的来源有很多，如果空军基地的指挥官使用的是灵活指挥官规则，那么飞机会被要求填补CAP。如果空军基地指挥官使用的是灵活指挥官规则，则会要求飞机填补补充CAP。这可能是为了应对感知到的飞机或TBM威胁。使用地面攻击指挥官或地面能力灵活指挥官规则集的指挥官也可以向地面目标位置发出争夺请求。这些地面攻击请求可以来自与空军基地联网的任何指挥官，并且该空军基地也被列入其空军基地名单。

The airbase processes the assignment by updating all takeoff times of aircraft at the base. If the airbase is not already launching a flight, it looks for a flight to launch. If no aircraft are available at the airbase, a CANTCO is transmitted to the commander. Also, if the maximum number of scramble requests for the aircraft in the requested queue has been reached, a CANTCO is transmitted to the commander. The remaining aircraft have their takeoff times updated. An acknowledgment message is sent to the commander if a flight is to be launched. If the airbase does not already have flights in the takeoff queue, the target select phase for the airbase is scheduled.

空军基地通过更新基地内所有飞机的起飞时间来处理任务。如果空军基地还没有发射航班，则寻找要发射的航班。如果空军基地没有飞机可用，则向司令员传送CANTCO。另外，如果请求队列中的飞机的争夺请求数达到了最大数量，则向指挥官发送CANTCO。其余飞机的起飞时间得到更新。如果要启动飞行，则向司令员发送确认信息。如果空军基地的起飞队列中还没有航班，则安排该空军基地的目标选择阶段。

The acknowledgment message is sent to the commander with the status of the assignment. If the airbase is able to completely fill the request, a WILCO is returned to the requester. If the airbase is able to partially fill the request, a WILCO is returned to the requester with a parameter indicating the number of aircraft that were not replaced. An airbase may be able to only partially fill a request for aircraft because either the alert queue from which the aircraft were requested is empty or the maximum number of scramble requests for the alert queue has been reached. When a message is sent to an airbase requesting a flight of aircraft, the airbase begins processing the flight from the aircraft’s alert queue to the takeoff queue.

向指挥官发送确认信息，说明任务的状况。 如果空军基地能够完全满足请求，则向请求者返回一个WILCO。如果空军基地能够部分满足请求，则返回一个WILCO给请求者，其中有一个参数表示没有被替换的飞机数量。一个空军基地可能只能部分满足飞机的请求，因为要么是请求飞机的警戒队列是空的，要么是已经达到了警戒队列的最大争夺请求数。当向空军基地发送请求飞机飞行的消息时，空军基地开始处理从飞机的警戒队列到起飞队列的飞行。

**4.7.3.4.2  Airbase Multiple Assignment**

4.7.3.4.2 空军基地的多次派任

If a Flexible Commander has direct scrambling capability and an aircraft at the airbase is selected to engage the threat, a multiple assignment command is sent to the airbase. The multiple assignment message is used to differentiate between the other types of scramble requests and the direct scramble request. A direct scramble request is processed using the same methodology as described in the previous section, with one major exception. In the direct scramble case, the airbase will first attempt to assign aircraft from the takeoff queue. If there are aircraft in the takeoff queue with weapons capable of dealing with the threat, they are vectored to the threat. If there are no eligible aircraft in the take-off queue, the processing is the same as described previously, with aircraft moved from the appropriate airbase alert queue to the takeoff queue. Once a flight has been selected for the assignment, the airbase forwards the multiple assignment message to the assigned flight leader.

如果灵活指挥官具有直接扰频能力，而空军基地的一架飞机被选中与威胁交战，则会向空军基地发出多次分配命令。多重分配信息用于区分其他类型的扰动请求和直接扰动请求。直接扰频请求的处理方法与上一节所述相同，但有一个主要的例外。在直接争夺的情况下，空军基地将首先尝试从起飞队列中分配飞机。如果在起飞队列中有能够对付威胁的武器的飞机，它们就会被定向到威胁上。如果起飞队列中没有符合条件的飞机，则处理方法与前面所述相同，飞机从相应的空军基地警戒队列移到起飞队列中。一旦选择了一个航班进行分配，空军基地就会将多次分配信息转发给被分配的飞行负责人。

The airbase then sends a multiple assignment acknowledgement message to the Flexible Commander. The multiple assignment acknowledgement is used by the Commander to differentiate between the actions that have been performed by the airbase. If the airbase was able to fill the request, whether completely or partially, the acknowledgement is a WILCO. If the airbase was unable to scramble any aircraft, a CANTCO acknowledgement is sent. Upon receipt of the CANTCO, if only direct scrambled aircraft were assigned to the target, the Commander will no longer consider the target to be assigned, so that the target may be re-evaluated and reassigned in the next Target Select phase.

然后，空军基地向灵活指挥官发送一个多次分配确认信息。多重分配确认信息被指挥官用来区分空军基地已经执行的行动。如果空军基地能够完全或部分地满足请求，则该确认为WILCO。如果空军基地无法争夺任何飞机，则发送一个CANTCO确认。在收到CANTCO后，如果只给目标分配了直接扰动的飞机，指挥官将不再考虑分配该目标，以便在下一个目标选择阶段对该目标进行重新评估和分配。

**4.7.3.4.3  Airbase Stop Command**

4.7.3.4.3 空军基地停止指令

The airbase can also process a stop message from its Flexible Commander. When multiple aircraft report to the Commander that they are engaging on the same target, the Commander chooses an aircraft as the correct engager and sends a stop command to the other aircraft. If the aircraft is still at the base, the stop command will be sent to the airbase. The airbase then forwards it to the flight leader. If the stopped aircraft was originally assigned to a CAP fill/refill before the direct scramble assignment, then the aircraft is reset to its original assignment. If it was not, it is placed back into the appropriate airbase queue.

空军基地还可以处理其灵活指挥官发出的停止信息。当多架飞机向司令员报告它们正在对同一目标进行交战时，司令员选择一架飞机作为正确的交战者，并向其他飞机发送停止指令。如果飞机还在基地，则将停止命令发送给空军基地。然后，空军基地将其转发给飞行队长。如果被停止的飞机在直接争夺任务之前，原本被分配到CAP补位，那么该飞机将被重置到原来的任务。如果没有，则将其放回相应的空军基地队列中。

**4.7.3.4.4  Airbase Communications Check**

4.7.3.4.4 航空基地通信检查

The airbase ruleset can optionally verify communications with its commander. If the communication with the commander is lost, the airbase can execute its User Rules phase to select an alternate commander.

空军基地规则集可以选择验证与指挥官的通信。如果失去与指挥官的通信，空军基地可以执行其用户规则阶段来选择一个备用指挥官。

**4.7.3.5   Airbase System Configuration**

4.7.3.5 航空基地系统配置

The airbase ruleset should only be used on a ground platform. A communications device is required. Weapons and sensors are not used. The airbase cannot be a commander, but it can be commanded by a platform using the Flexible Commander ruleset. The airbase ruleset does not use targets or assets.

航空基地规则集只能在地面平台上使用。需要一个通讯装置。不使用武器和传感器。空军基地不能成为指挥官，但可以由平台使用灵活指挥官规则集来指挥。空军基地规则集不使用目标或资产。

**4.7.3.6   Airbase Network Recommendations**

4.7.3.6 对空军基地网络的建议

A duplex or other two-way communications net with the airbase’s commander is required. The message class type is command. If the vertical capability is specified for the link, the Flexible Commander will not load the network with SAM engagement information. This information is ignored by the airbase anyway.

需要与空军基地的指挥员建立双工网或其他双向通信网。信息类类型为命令。如果为链路指定了垂直能力，那么灵活指挥官将不会在网络中加载SAM交战信息。反正这种信息是被空军基地忽略的。

A command net should also be configured with all associated Ground Attacker Commanders and ground-capable Flexible Commanders. This network needs to support communications both to and from the commander platform.

指挥网还应该配置所有相关的地面攻击指挥官和地面能力的灵活指挥官。这个网络需要支持指挥平台与指挥平台之间的通信。

**4.7.4 Corps Tactical Operations Center (CTOC)**

4.7.4 军团战术行动中心(CTOC)

**4.7.4.1   CTOC Overview**

4.7.4.1 CTOC概述

The Corps Tactical Operations Center represents the highest modeled level of the surface-to-surface chain. It can optionally receive track messages from a source such as the Intelligence Collection and Analysis Center. The CTOC sends the Border Crossing Authority (BCA) and track messages to its subordinates in the surface-to-surface command chain.

兵团战术行动中心代表了地表到地表链的最高模型级别。它可以选择从情报收集和分析中心等来源接收跟踪信息。CTOC向其在地表到地表指挥链中的下属发送边境口岸授权（BCA）和跟踪信息。

**4.7.4.2   CTOC Battle Management Phases**

4.7.4.2 CTOC战役管理阶段

The CTOC's role within battle management is to send the BCA message to its subordinates. Prior to receipt of the BCA message, the subordinates are in a "weapons hold" state. Receipt of the BCA message allows this weapons state to be changed to "not-on-hold."

CTOC在战役管理中的作用是向其下属发送BCA信息。在收到BCA消息之前，下属处于 "武器持有 "状态。收到BCA信息后，可以将这种武器状态改为 "非保留状态"。

The target-select phase for the CTOC ruleset is actually the BCA command routine. The BCA command-generating routine is scheduled to occur at the start time of the target-select phase, and the scheduling occurs only once.

CTOC规则集的目标选择阶段实际上就是BCA命令例程。BCA命令生成例程在目标选择阶段的开始时间发生，调度只发生一次。

**4.7.4.3   CTOC Received Message Processing**

4.7.4.3 CTOC接收到的信息处理

The CTOC receives track messages from an intelligence source. The CTOC determines if the message should be delayed. If the message is to be delayed, the message-delay routine will schedule the processing of the message at a future time. If the message is not to be delayed, the CTOC immediately forwards the message.

反恐委员会收到情报来源的跟踪信息。CTOC决定是否应延迟该电文。如果消息要延迟，消息延迟例程将安排在未来的某个时间处理该消息。如果消息不需要延迟，CTOC立即转发消息。

**4.7.4.4   CTOC System Configuration**

4.7.4.4 CTOC系统配置

The CTOC ruleset can only be used on ground platforms. A communications device is required, and weapons are not used. The CTOC can be a commander to a platform using the Corps Artillery (CArty) ruleset, SAM Commander, or Ground Attacker Commander, but CTOC cannot have a commander. As a ground unit, the CTOC cannot be a flight leader or wingman. The CTOC does not use either the target or asset lists.

CTOC规则集只能在地面平台上使用。需要一个通讯装置，不使用武器。CTOC可以使用兵团炮兵(CArty)规则集、萨姆指挥官或地面攻击者指挥官对平台进行指挥，但CTOC不能有指挥官。作为地面单位，CTOC不能担任飞行队长或僚机。CTOC不使用目标或资产列表。

**4.7.4.5   CTOC Network Recommendations**

4.7.4.5 通訊及科技委員會網絡建議

A simplex or broadcast link with message class command to subordinates is needed. Track links can be set up as desired.

需要对下级进行消息类命令的单工或广播链接。跟踪链接可根据需要设置。

# 4.7.9 Surface-to-Surface Fire Unit (SSFU)

4.7.9 地表对地表的消防单位(SSFU)

## 4.7.9.1 SSFU Overview

4.7.9.1 社会保障基金概述

The SSFU can launch surface-to-surface weapons against both scripted and commanded assignment targets. These surface-to-surface weapons can either be a ballistic missile or a weapon defined as a captive platform or complex weapon using the AGAttacker ruleset and a specified airframe. Once active, the SSFU launches weapons against all scripted targets according to the launch times specified on its target list. Once all of the scripted targets have been engaged, the SSFU can engage against commanded assignment targets.

地对地武器部队可以对脚本和指令分配的目标发射地对地武器。这些地对地武器可以是弹道导弹，也可以是使用AGAttacker规则集和指定机体定义为自备平台或复杂武器的武器。一旦激活，SSFU就会根据其目标列表上指定的发射时间对所有脚本目标发射武器。一旦所有的脚本目标都被攻击，SSFU就可以对指令分配的目标进行攻击。

The SSFU receives target assignments from its commander and sends acknowledgement messages to the commander indicating whether it can execute an assignment. The SSFU then launches on the assigned target and, after launching, moves to the next waypoint. Both scripted and commanded launches take place only at launch sites.

SSFU从其指挥官那里接收目标分配，并向指挥官发送确认信息，说明它是否可以执行一项任务。然后，SSFU向指定的目标发射，发射后，移至下一个航点。脚本发射和指令发射都只在发射场进行。

The SSFU also has the capability of hiding from attackers, as well as reloading. Hide sites can be used to reduce the SSFU's susceptibility to attack or to damage. Reload sites can be used to replenish the SSFU's weapons count to its count-per-reload number of weapons.

SSFU还具有躲避攻击者的能力，以及重新装载的能力。躲藏地点可以用来降低SSFU对攻击或伤害的敏感度。重装地点可以用来补充SSFU的武器数量，使其达到每次重装武器的数量。

## 4.7.9.2 SSFU Battle Management Phases

4.7.9.2 南部安全论坛战役管理阶段

The SSFU ruleset uses tactical operations, launch, intercept, reload, and hide phases.

SSFU规则集使用战术操作、发射、拦截、重装和隐藏阶段。

### 4.7.9.2.1 SSFU Tactical Operations Phase (Setup Operation)

4.7.9.2.1 安全部队战术行动阶段(设置行动)

The setup operation is the part of the Tactical Operations Phase that is scheduled when the SSFU reaches a launch site and the SSFU still has weapons. This operation represents the amount of time it takes to ready the launcher for launching weapons against targets. Upon completing the setup, the launch phase is scheduled if a target exists. If no target exists, the Tac. Ops. Phase is scheduled, for the tear-down operation, at the waypoint off-time and the SSFU is free to relocate to the next waypoint. Upon reaching the launch site, if the SSFU has no weapons, it immediately relocates to the next waypoint without executing the setup operation.

设置操作是战术行动阶段的一部分，当SSFU到达发射场且SSFU仍有武器时，就会安排设置操作。该操作代表了发射器为对目标发射武器做好准备所需的时间。完成设置后，如果有目标存在，则安排发射阶段。如果没有目标存在，Tac. Ops. 如果没有目标存在，则安排在航点关闭时间进行拆除作业，SSFU可以自由地转移到下一个航点。到达发射地点后，如果SSFU没有武器，则立即转移到下一个航点，而不执行设置操作。

If the SSFU is at a deployed user-defined launch site during this phase, its susceptibilities are adjusted based on the site's susceptibility parameters.Otherwise, the SSFU's susceptibilities to detection and damage remain unchanged. Subsection 4.7.32 describes the susceptibility adjustments at a launch site.

如果SSFU在此阶段处于已部署的用户定义的发射场，则根据发射场的易感性参数调整其易感性，否则，SSFU的探测和损害易感性保持不变。4.7.32小节描述了发射场的易感性调整。

For further explanation of the Tactical Operations phase see section 4.20 of the Methodology Manual.

关于战术行动阶段的进一步解释，见《方法手册》第4.20节。

### 4.7.9.2.2 SSFU Launch Phase

4.7.9.2.2 SSFU发射阶段

If a viable target exists on its target list, the launch phase of the SSFU is scheduled upon reaching a launch site and executing the setup operation. The target can be either scripted or received through a commanded assignment. If the target is within range of the weapon, a surface-to-surface weapon is launched according to the launch-phase timing delays. If the target is no longer in range, a condition that should not occur, the tear-down operation is scheduled and the launcher is ready to relocate to the next waypoint. After launching, the tear-down operation is scheduled and the launcher is ready to relocate to the next waypoint.

如果目标清单上有一个可行的目标，则SSFU的发射阶段将在到达发射地点并执行设置操作后安排。目标可以是脚本，也可以通过指令分配接收。如果目标在武器的射程内，则根据发射阶段的定时延时发射地对地武器。如果目标已经不在射程内，这种情况不应该发生，则安排拆弹操作，发射器准备迁移到下一个航点。发射后，安排拆弹操作，发射器准备转移到下一个航点。

If the SSFU is at a deployed user-defined launch site during this phase, its susceptibilities are adjusted based on the site's susceptibility parameters. Otherwise, the SSFU's susceptibilities to detection and damage remain unchanged. Subsection 4.7.32 describes the susceptibility adjustments at a launch site.

如果SSFU在这一阶段处于已部署的用户定义的发射场，则根据发射场的易损性参数调整其易损性。否则，SSFU的探测和损害敏感性保持不变。第4.7.32小节描述了发射场的易感性调整。

To introduce randomness into the target position, the Random Targeting option, located on the Launch Phase window may be used. The purpose behind this option is to be able to treat a target as a targeted area as opposed to a single point. If selected, a random target position within the target’s system radius will be computed by EADSIM. If randomness is eliminated, no error will be applied to the target location.

为了将随机性引入目标位置，可使用位于 "发射阶段 "窗口的 "随机瞄准 "选项。该选项的目的是能够将目标视为一个目标区域，而不是一个单点。如果选择该选项，EADSIM将计算出目标系统半径内的随机目标位置。如果消除了随机性，则不会对目标位置施加误差。

If this option is selected the random position is computed based on the following methodology illustrated in Figure 4.7.9-1.

如果选择了这个选项，随机位置的计算方法如下图4.7.9-1所示。

For Uniform Distribution, the displacement in the x and y directions are random numbers between +/- the target radius. For Gaussian Distribution, the displacement is calculated by taking a normal distribution with zero mean and given s. The multiplier can be used to create a concentration of aim points at the target center or more evenly spread across the target radius as the multiplier is increased. Random draws will be taken on x and y until:

对于均匀分布，x和y方向的位移是+-目标半径之间的随机数。对于高斯分布，位移是通过取一个平均数为零的正态分布并给定s来计算的。乘数可以用来创建一个集中在目标中心的瞄准点，或者随着乘数的增加而更均匀地分布在目标半径上。将在x和y上进行随机抽签，直到。

Once X and Y are randomly computed, the displacements are rotated into ECI coordinates containing the new target position. This target position will be the aim point for the missile. If CEP options are selected, the CEP will be applied about this targeted aim point.

一旦X和Y被随机计算出来，位移就会被旋转成包含新目标位置的ECI坐标。这个目标位置将是导弹的瞄准点。如果选择了CEP选项，CEP将被应用在这个目标瞄准点上。

### 4.7.9.2.3 SSFU Tactical Operations (Tear-Down Operation)

4.7.9.2.3 南部安全部队的战术行动(拆除行动)

The tear-down operation is the part of the Tactical Operations phase that is scheduled after the launch phase has been completed and the weapon is launched, or when the setup operation is complete and no targets exist on the target list. This operation represents the amount of time it takes to take down the launcher and ready it for transport. Upon completion of this operation, the SSFU begins moving to the next waypoint in the waypoint list.

拆除作业是战术行动阶段的一部分，安排在发射阶段完成并发射武器之后，或在设置作业完成且目标清单上没有目标时进行。这个操作代表了取下发射器并准备运输所需的时间。该操作完成后，SSFU开始移动到航点列表中的下一个航点。

If the SSFU is at a deployed user-defined launch site during this phase, its susceptibilities are adjusted based on the site's susceptibility parameters. Otherwise, the SSFU's susceptibilities to detection and damage remain unchanged. Subsection 4.7.32 describes the susceptibility adjustments at a launch site.

如果SSFU在这一阶段处于已部署的用户定义的发射场，则根据发射场的易损性参数调整其易损性。否则，SSFU的探测和损害敏感性保持不变。第4.7.32小节描述了发射场的易感性调整。

For further explanation of the Tactical Operations phase see section 4.20 of the Methodology Manual.

关于战术行动阶段的进一步解释，见《方法手册》第4.20节。

### 4.7.9.2.4 SSFU Intercept Phase

4.7.9.2.4 SSFU拦截阶段。

The intercept phase evaluates the results of the engagement. The ballistic missile model allows the deployment of a variety of missile objects, both lethal and non-lethal. Lethal objects are objects for which a kill determination is performed upon impact. Kill determinations are not performed when non-lethal objects impact. Booster and RV type objects are considered lethal and will be evaluated for target destruction upon impact. The Booster being a lethal object provides modeling of a non-separating ballistic missile. Debris, PBV, Decoy and Chaff type objects are considered non-lethal and no further processing will occur when they impact.

拦截阶段评估交战结果。弹道导弹模型允许部署各种导弹物体，包括致命性和非致命性物体。致命性物体是指在撞击时进行杀伤判定的物体。非致命性物体在撞击时不进行杀伤判定。助推器和RV型物体被认为是致命的，将在撞击时评估是否摧毁目标。助推器作为一种致命物体，提供了非分离式弹道导弹的模型。碎片、PBV、诱饵和Chaff类物体被视为非致命性物体，在其撞击时将不作进一步处理。

The intercept phase determines the result of ballistic missile engagements. To determine when to schedule the intercept phase, the C3I model performs a look ahead while updating state information for each scenario interval to determine if a missile impacts within the next scenario interval. The intercept phase is scheduled at the time of missile impact/detonation plus the start time for the phase. For the case where detonation occurs with a non-zero height of burst, intercept phase start time is ignored and the intercept phase is scheduled for the exact time of detonation. For the nuclear detonation case, interceptor missiles and ballistic missile are propagated to the time of detonation to support nuclear area kill determinations. Propagation of ballistic missiles and interceptors is performed by the internal 3-DOF aerodynamic flight model as described in section 5.7.3 of the Methodology Manual.

拦截阶段决定弹道导弹交战的结果。为了确定何时安排拦截阶段，C3I模型在更新每个假想区间的状态信息的同时进行一次展望，以确定导弹是否在下一个假想区间内撞击。拦截阶段的时间安排在导弹撞击引爆的时间加上该阶段的开始时间。对于发生爆裂高度非零的情况，忽略拦截阶段开始时间，拦截阶段安排在准确的爆裂时间。对于核爆情况，拦截导弹和弹道导弹传播到爆炸时间，以支持核区杀伤判定。弹道导弹和拦截弹的传播由内部3-DOF空气动力飞行模型进行，如《方法手册》第5.7.3节所述。

The specific target is evaluated first. If the ground range from the targeted location to the actual target location is greater than the maximum lethal radius, the target will not be destroyed. The probability of kill against the specific target type is next evaluated against a random draw from a uniform distribution. If the target does not match a specified target type for which a probability of kill has been defined, the default probability of kill is used. If the engagement is judged a success based on the random draw, three separate conditions are evaluated. If the target is already dead, the intercept is logged as a hit on a dead target (Fail Dead Ground). If the target is an airbase, the action is logged as Hit Base and the airbase is damaged as described in Subsection 4.7.3.2. Otherwise, the engagement is logged as a Success. If randomness is eliminated, the engagements are always a success.

首先对具体目标进行评估。如果从目标位置到实际目标位置的地面距离大于最大杀伤半径，则目标不会被摧毁。接下来根据从均匀分布中随机抽取的目标类型评估对特定目标类型的杀伤概率。如果目标不符合已定义击杀概率的指定目标类型，则使用默认的击杀概率。如果根据随机抽签判定交战成功，则会评估三个不同的条件：如果目标已经死亡，则使用默认的击杀概率。如果目标已经死亡，则拦截记录为击中死亡目标（失败死地）。 如果目标是空军基地，则按4.7.3.2小节所述，将行动记录为命中基地，空军基地受损。否则，交战记录为成功。如果随机性被消除，则交战总是成功。

The weapon element definition also provides an option for an area kill against ground platforms. When a weapon with the area kill option selected intercepts the ground platform (i.e., impacts), the lethality of the weapon is evaluated against all platforms within the weapon's lethal radius. For a weapon event platform to be destroyed using area kill, the weapon event platform must not be at its detonation point.

武器要素定义还提供了一个对地面平台进行区域杀伤的选项。当选择了区域杀伤选项的武器拦截地面平台(即撞击)时，武器的杀伤力将针对武器杀伤半径内的所有平台进行评估。要使用区域杀伤摧毁武器事件平台，武器事件平台必须不在其引爆点上。

A weapon's Pk can be either a single-value Pk or a Pk table. The Pk tables include the parametrics of downrange and crossrange from the intercept position to the location of the platform being evaluated. Downrange is computed in the horizontal plane along a vector from the launch position to the intercept position. Crossrange is computed along a vector orthogonal to the downrange component in the horizontal plane. These two parametrics can be used to form a two-dimensional table of lethality data. The Pk tables also include a parametric of ground range from the intercept position. This option can be used as a one dimensional table of lethality data. More information about the Pk tables is given in Appendix B6.

武器的Pk可以是一个单值Pk，也可以是一个Pk表。Pk表包括从拦截位置到被评估平台位置的下射程和交叉射程参数。下射程是在水平面沿发射位置到拦截位置的矢量计算的。交叉射程是沿水平面内与下射程分量正交的矢量计算的。这两个参数可以用来形成一个二维的致死率数据表。Pk表还包括一个从截距位置开始的地面范围参数。这个选项可以作为一维的致死率数据表使用。关于Pk表的更多信息见附录B6。

A single-value Pk is the user-specified Pk out to the user-defined percentage of the weapon's lethal range. The Pk decreases linearly from the specified value at the user-defined percentage of the weapon's lethal range to a second user-defined percentage of the specified Pk value at the lethal range of the weapon. This Pk is compared with a random draw.

单一值Pk是指用户指定的Pk值到用户定义的武器致命范围的百分比。Pk从用户定义的武器致死范围百分比的指定值线性递减到武器致死范围指定Pk值的第二个用户定义百分比。该Pk值与随机抽签比较。

When the target is an SSFU, the weapon's Pk may be degraded to help model protective capabilities of various sites. If the SSFU is at a user-defined site and the site has an anti-weapon, the weapon's Pk is reduced by the effectiveness of the anti-weapon [R(eff)]. The reduction is computed as:

当目标是SSFU时，武器的Pk可能会被降低，以帮助模拟不同地点的保护能力。如果SSFU位于用户定义的地点，且该地点有反武器，则武器的Pk会被反武器的有效性[R(eff)]降低。减少量的计算方法是：

### 4.7.9.2.5 SSFU Reload Phase

4.7.9.2.5 SSFU重装阶段。

When the SSFU arrives at a reload site the reload phase is scheduled. During the reload phase, all weapons on the SSFU that require reloading, are reloaded to their count-per-reload value provided the reload site is still alive. The SSFU remains at the site until the maximum of the reload phase timing or the waypoint off-time is reached or until a commanded assignment sends the SSFU on to its next waypoint.

当SSFU到达重新装填地点时，将安排重新装填阶段。在重装阶段，SSFU上所有需要重装的武器都会被重装到其每次重装的计数值，但前提是重装地点仍然存在。SSFU一直停留在该地点，直到达到重新装填阶段的最大时间或达到航点关闭时间，或直到指令性任务将SSFU送至下一个航点。

If the reload site is a user-defined site that does not possess any of the required weapons and the SSFU is totally out of weapons, then it either goes to another reload site if it exists; goes to a hide site, if it exists; or remains at this site.

如果重装站点是一个用户定义的站点，没有任何所需的武器，而SSFU完全没有武器，那么它要么去另一个重装站点（如果存在）；要么去一个隐藏站点（如果存在）；要么留在这个站点。

If the reload site is not a user-defined site, then it is assumed that an infinite amount of the necessary weapon(s) exists and the unit reloads to its count-per- reload value(s) for each weapon.

如果重新装填的地点不是用户定义的地点，则假设存在无限量的必要武器，单位重新装填到每件武器的每次装填次数值。

If the SSFU does not require reloading, the FU will remain at the site until the off-time of the waypoint is reached, or until a commanded assignment sends the SSFU on to its next waypoint.

如果SSFU不需要重新装填，FU将留在站点，直到到达航点的关闭时间，或直到指令性任务将SSFU发送到下一个航点。

If the SSFU is at a deployed user-defined reload site during this phase, its susceptibilities are adjusted based on the site's susceptibility parameters. Otherwise, the SSFU's susceptibilities to detection and damage remain unchanged. Subsection 4.7.31 describes the susceptibility adjustments at a reload site.

如果SSFU在此阶段处于已部署的用户定义的重装站点，则根据该站点的易损性参数调整其易损性。否则，SSFU的检测和损坏易感性保持不变。第4.7.31小节说明了重装场点的易感性调整。

### 4.7.9.2.6 SSFU Hide Phase

4.7.9.2.6 SSFU 隐藏阶段

If the SSFU arrives at a hide site, then the hide phase is scheduled for the FU. If the SSFU has weapons and a target, it will stay at the hide site until hide phase repeat time is reached.

如果SSFU到达隐藏地点，则为FU安排隐藏阶段。如果SSFU有武器和目标，它将停留在隐藏地点，直到达到隐藏阶段的重复时间。

If the SSFU has weapons but does not have a target, it will stay at the hide site until the off-time of the waypoint is reached or until commanded to leave. This simulates the time an SSFU waits in a protected area until it is assigned by its commander to engage a target.

如果SSFU有武器但没有目标，它将停留在隐藏地点，直到达到航点的关闭时间或被命令离开。这模拟的是战略防御部队在保护区内等待的时间，直到指挥官指定它与目标交战。

If the SSFU does not have weapons, it remains at the hide site until the hide phase time is reached. This simulates the waiting period for a launcher that has just launched a weapon and is getting ready to go to a reload site.

如果SSFU没有武器，它就留在隐藏地点，直到达到隐藏阶段的时间。这就模拟了一个刚刚发射了武器并准备前往重新装填地点的发射器的等待期。

If at a deployed user-defined hide site during this phase, the SSFU's susceptibilities are adjusted based on the site's susceptibility parameters. Otherwise, the SSFU's susceptibilities to detection and damage remain unchanged. Subsection 4.7.30 describes the susceptibility adjustments at a hide site.

如果在此阶段处于已部署的用户定义的隐藏地点，则根据该地点的易感性参数调整SSFU的易感性，否则，SSFU的检测和破坏易感性保持不变。否则，SSFU的检测和破坏易感性保持不变。第4.7.30小节描述了隐藏地点的易感性调整。

## 4.7.9.3 SSFU Received Message Processing

4.7.9.3 SSFU 接收到的信息处理

The SSFU message-processing routine receives target assignments from a Ground Attacker Commander or ground-capable Flexible Commander and sends acknowledgments to the commander as to whether the command was executed. If a weapon can be launched, the launch phase is scheduled to execute the launch. If the commanding unit is a Ground Attacker Commander or Flexible Commander then a COMPLETE message is sent after the intercept phase so that a Battle Damage Assessment (BDA) may be performed by an AGAttacker or an Intel Center.

SSFU消息处理例行程序接收来自地面攻击指挥官或地面能力灵活指挥官的目标分配，并向指挥官发送确认，说明命令是否被执行。如果可以发射武器，则安排发射阶段执行发射。如果指挥单位是地面攻击手指挥官或灵活指挥官，则在拦截阶段后发送COMPLETE消息，以便由AGA攻击手或情报中心进行战损评估（BDA）。

## 4.7.9.4 SSFU System Configuration

4.7.9.4 SSFU 系统配置

The SSFU ruleset can be used only on ground platforms. A communications device and weapons are recommended. Valid weapon types are surface-to-surface weapons, either a ballistic missile or a weapon defined as a captive platform or complex weapon using the AGAttacker ruleset and a specified airframe. Sensors are not used. The SSFU cannot be a commander, a flight leader, or a wingman. The SSFU can be commanded by a Ground Attacker Commander or a ground- capable Flexible Commander. Asset lists are not used.

SSFU规则集只能在地面平台上使用。建议使用通信装置和武器。有效的武器类型是地对地武器，可以是弹道导弹，也可以是使用AGAttacker规则集和指定机身定义为自备平台或复杂武器的武器。 不使用传感器。SSFU不能是指挥官、飞行队长或僚机。 SSFU可以由地面攻击机指挥官或具有地面能力的灵活指挥官指挥。不使用资产清单。

## 4.7.9.5 SSFU Network Recommendations

4.7.9.5 安全生产股网络建议

A duplex link with message class command to the SSFU's commander is recommended.

建议用消息类命令向SSFU的指挥官发出双工链接。

# 4.7.10 Red Transporter Erector Launcher (Red TEL)

4.7.10 红色运输机发射器(红色TEL)

## 4.7.10.1 Red TEL Overview

4.7.10.1 Red TEL概述

The Red TEL launches surface-to-surface weapons against scripted targets. These surface-to-surface weapons can either be a ballistic missile or a weapon defined as a captive platform or complex weapon using the AGAttacker ruleset and a specified airframe. The Red TEL launches surface-to-surface weapons at scripted targets, if the targets are within range, and determines the outcome of the engagement.

红色TEL对剧本中的目标发射地对地武器。这些地对地武器既可以是弹道导弹，也可以是使用AGAttacker规则集和指定机体定义为自备平台或复杂武器的武器。如果目标在射程内，红色电报机向脚本目标发射地对地武器，并决定交战的结果。

## 4.7.10.2 Red TEL Battle Management Phases

4.7.10.2 红色TEL战役管理阶段

The Red TEL utilizes launch and intercept phases.

红色电报利用发射和拦截阶段。

### 4.7.10.2.1 Red TEL Launch Phase

4.7.10.2.1 红色电报发射阶段

Platforms using the Red TEL ruleset launch surface-to-surface weapons at a predefined target, if that target is within range. The time of the launch is specified by the user when deploying the Red TEL platform.

使用 "红色电讯 "规则集的平台向预定的目标发射地对地武器，如果该目标在射程之内。发射时间由用户在部署红色电讯平台时指定。

To introduce randomness into the target position, the Random Targeting option, located on the Launch Phase window may be used. The purpose behind this option is to be able to treat a target as a targeted area as opposed to a single point. If selected, a random target position within the target’s system radius will be computed by EADSIM. If randomness is eliminated, the target position will not be errored.

为了将随机性引入目标位置，可使用位于 "发射阶段 "窗口的 "随机瞄准 "选项。该选项的目的是能够将目标视为一个目标区域，而不是一个单点。如果选择该选项，EADSIM将计算出目标系统半径内的随机目标位置。如果消除随机性，则目标位置将不会出错。

If this option is selected the random position is computed based on the following methodology illustrated in Figure 4.7.10-1.

如果选择这个选项，随机位置的计算方法如下图4.7.10-1所示。

Figure 4.7.10-1

图4.7.10-1

For Uniform Distribution, the displacement in the x and y directions are random numbers between +/- the target radius. For Gaussian Distribution, the displacement is calculated by taking a normal distribution with zero mean and given s. The multiplier can be used to create a concentration of aim points at the target center or more evenly spread across the target radius as the multiplier is increased. Random draws will be taken on x and y until:

对于均匀分布，x和y方向的位移是+/-目标半径之间的随机数。对于高斯分布，位移是通过取一个平均数为零的正态分布和给定的s来计算的。将在x和y上进行随机抽签，直到：

Once X and Y are randomly computed, the displacements are rotated into ECI coordinates containing the new target position. This target position will be the aim point for the missile. If CEP options are selected, the CEP will be applied about this targeted aim point.

一旦X和Y被随机计算出来，位移就会被旋转成包含新目标位置的ECI坐标。这个目标位置将是导弹的瞄准点。如果选择了CEP选项，CEP将被应用在这个目标瞄准点上。

### 4.7.10.2.2 Red TEL Intercept Phase

4.7.10.2.2 红色TEL拦截阶段

During the Red TEL intercept phase, a determination is made as to whether the launched missile succeeded or failed. The determination is identical to that of the SSFU intercept phase. The intercept phase is scheduled after the launched missile has impacted, as determined by flight processing.

在 "红色电讯 "拦截阶段，将确定发射的导弹是成功还是失败。这一确定与SSFU拦截阶段的确定相同。拦截阶段安排在发射的导弹撞击之后，由飞行处理确定。

The intercept phase determines the result of ballistic missile engagements. To determine when to schedule the intercept phase, the C3I model performs a look ahead while updating state information for each scenario interval to determine if a missile impacts within the next scenario interval. The intercept phase is scheduled at the time of missile impact/detonation plus the start time for the phase. For the case where detonation occurs with a non-zero height of burst, intercept phase start time is ignored and the intercept phase is scheduled for the exact time of detonation. For the nuclear detonation case, interceptor missiles and ballistic missile are propagated to the time of detonation to support nuclear area kill determinations. Propagation of ballistic missiles and interceptors is performed by the internal 3-DOF aerodynamic flight model as described in section 5.7.3 of the Methodology Manual

拦截阶段决定弹道导弹交战的结果。为了确定何时安排拦截阶段，C3I模型在更新每个假想区间的状态信息的同时进行一次展望，以确定导弹是否在下一个假想区间内撞击。拦截阶段的时间安排在导弹撞击/起爆的时间加上该阶段的开始时间。对于发生爆裂高度非零的情况，忽略拦截阶段开始时间，拦截阶段安排在准确的爆裂时间。对于核爆情况，拦截导弹和弹道导弹传播到爆炸时间，以支持核区杀伤判定。弹道导弹和拦截导弹的传播由内部3-DOF空气动力飞行模型进行，如《方法手册》第5.7.3节所述。.

## 4.7.10.3 Red TEL Received Message Processing

4.7.10.3 红色电讯接收到的信息处理

The Red TEL has no message-processing capability.

红色TEL没有信息处理能力。

## 4.7.10.4 Red TEL System Configuration

4.7.10.4 红色电讯系统配置

The Red TEL ruleset can be used only on ground platforms. Sensors and communications devices are not used. Valid weapon types are surface-to-surface weapons, either a ballistic missile or a weapon defined as a captive platform or complex weapon using the AGAttacker ruleset and a specified airframe. The Red TEL uses scripted targets; it does not use assets. The Red TEL cannot be a commander nor have a commander; the Red TEL cannot be a flight leader or a wingman.

红色TEL规则集只能在地面平台上使用。不使用传感器和通信装置。有效的武器类型是地对地武器，可以是弹道导弹，也可以是使用AGAttacker规则集和指定的机身定义为俘虏平台或复杂武器的武器。红色TEL使用脚本目标；它不使用资产。红色TEL不能是指挥官，也不能有指挥官；红色TEL不能是飞行队长或僚机。

## 4.7.10.5 Red TEL Network Recommendations

4.7.10.5 红色电讯网络建议

Establishing networks with the Red TEL is not required as the Red TEL does not have a message-processing capability.

由于 "红色电讯 "不具备信息处理能力，因此不需要与 "红色电讯 "建立网络。

# 4.7.16 Return-To-Base (RTB) Ruleset

4.7.16 返回基地规则集

## 4.7.16.1 RTB Overview

4.7.16.1 返回基地概述

The Return to Base (RTB) ruleset is a ruleset that aircraft can transition to when returning to base. While operating in the RTB ruleset, aircraft can execute drag maneuvers to avoid enemy attacks. The RTB ruleset, however, does not allow aircraft to return fire, receive commanded assignments, nor engage enemies on its own.

返回基地（RTB）规则集是飞机返回基地时可以过渡到的规则集。当在RTB规则集下运行时，飞机可以执行拖曳机动以避免敌人的攻击。但是，RTB规则集不允许飞机还击、接受指令分配，也不允许飞机自行与敌人交战。

## 4.7.16.2 RTB Battle Management Phases

4.7.16.2 RTB战役管理阶段

The RTB ruleset consists of only a few phases that may be executed while a platform is returning home.

RTB规则集只由几个阶段组成，可能在平台返乡时执行。

### 4.7.16.2.1 RTB Phase

4.7.16.2.1 实时广播阶段

The return to base phase is scheduled after a flight leader evaluates its RTB trigger events and one of the events is satisfied. It is scheduled to execute when the associated RTB response delay expires. The purpose of this phase is to determine whether or not a flight is ready to return to base and if so, schedule the associated RTB response. There are two possible RTB responses: return to base and land or return home and adopt a CAP. If returning to base, the flight leader will continue to execute this phase once every scenario interval until the decision has been reached that the flight can return home.

在飞行领导者评估其 RTB 触发事件且其中一个事件得到满足后，安排返回基地阶段。当相关的RTB响应延迟到期时，该阶段将被安排执行。该阶段的目的是确定一个航班是否已经准备好返回基地，如果是，则安排相关的RTB响应。有两种可能的RTB响应：返回基地并降落或返回原籍并采用CAP。如果返回基地，飞行负责人将继续执行这一阶段，每隔一段时间就执行一次，直到决定该航班可以返航。

If the flight is supposed to adopt an RTB ruleset, the flight cannot return to base until all members have completed their current engagements, i.e., are operating in their target select or vector phases. When the flight is ready to return to base, the flight is marked RTB in the commander’s subordinate list to prevent further assignments. After the flight is marked RTB, each flight member will transition to an RTB ruleset if one is specified. On the other hand, if the flight has been triggered to return home and adopt a CAP, the flight leader will execute this phase once to carry out the RTB response.

如果飞行器应该采用RTB规则，则在所有成员完成当前的交战，即在目标选择或矢量阶段行动之前，该飞行器不能返回基地。当飞行准备返回基地时，该飞行在指挥官的下属名单中被标记为RTB，以防止进一步分配。在飞行被标记为RTB后，如果有指定的RTB规则集，每个飞行成员将过渡到RTB规则集。另一方面，如果该航班已被触发返航并采用CAP，则飞行负责人将执行此阶段一次，以执行RTB响应。

If the commander of the flight is a Flexible Commander ruleset and the flight was on a CAP, the commander of the flight attempts to refill the CAP from an airbase if the CAP’s deactivation time has not been reached.

如果飞行的指挥官是灵活的指挥官规则集，而飞行是在CAP上，如果CAP的停用时间还没有达到，飞行的指挥官就会尝试从空军基地补充CAP。

### 4.7.16.2.2 RTB React-to-Engage Phase

4.7.16.2.2 RTB反应到接触阶段

The react-to-engage phase is scheduled in response to an engagement against the RTB ruleset. This phase is scheduled at its start time by an attacker entering the engage mode against the RTB platform: i.e., entering an attempt to lock on the platform. The RTB ruleset does not react to being engaged.

反应到参与阶段是针对针对RTB规则集的参与而安排的。该阶段的开始时间是由攻击者进入针对RTB平台的交战模式而安排的：即进入锁定平台的企图。RTB规则集不对被交战作出反应。

### 4.7.16.2.3 RTB React-to-Lock Phase

4.7.16.2.3 RTB反应-锁定阶段

The react-to lock phase is the reaction of the RTB ruleset to being locked on by an attacker's fire control radar. The RTB ruleset performs a drag maneuver and schedules the drag phase at the completion of the maneuver.

反应锁定阶段是RTB规则集对被攻击者的火控雷达锁定的反应。RTB规则集执行拖曳机动，并在机动完成后安排拖曳阶段。

### 4.7.16.2.4 RTB Drag Maneuver Phase

4.7.16.2.4 RTB拖曳机动阶段。

The drag phase processing represents the completion of the drag phase. The RTB platform continues executing the drag phase until no more missiles are in the air to the RTB platform. If the platform has survived the encounter, it now resumes its return to base actions.

拖曳阶段处理代表拖曳阶段的完成。RTB平台继续执行拖曳阶段，直到没有更多的导弹飞向RTB平台。如果该平台在遭遇战中幸存下来，现在恢复返回基地行动。

## 4.7.16.3 RTB Received-Message Processing

4.7.16.3 RTB接收到的信息处理

The RTB ruleset receives and sends no messages.

RTB规则集不接收和发送消息。

## 4.7.16.4 RTB System Configuration

4.7.16.4 RTB系统配置

Platforms are not configured initially using the RTB ruleset.

平台最初没有使用RTB规则集进行配置。

# 4.7.17 Escort Ruleset

4.7.17 护送规则集

## 4.7.17.1 Escort Overview

4.7.17.1 护卫队概述

The Escort ruleset is designed as a fighter escort to the bomber-type rulesets: i.e., Agattacker, Bomber, Fighter-Bomber, and Wild Weasel. The escort is highly centralized to the escorted platform; therefore, the escort has no independent target-selection process. The escort engages only targets assigned by the escorted platforms or as a reaction to being engaged. The Fighter Ruleset is often a preferred ruleset for modeling of an air-to-air interaction for many “escort” missions.

护航规则集被设计为轰炸机型规则集的战斗机护航：即Agattacker、Bomber、Fighter-Bomber和Wild Weasel。护航是高度集中在被护航平台上的，因此，护航没有独立的目标选择过程。护卫队只与被护卫平台指定的目标交战，或者作为被交战的反应。对于许多 "护航 "任务来说，战斗机规则集通常是建立空对空互动模型的首选规则集。

## 4.7.17.2 Escort Battle Management Phases

4.7.17.2 护航战斗管理阶段

The Escort ruleset uses much of the same processing as the Sweeper ruleset, the major exception being that the escort relies on the escorted platform for target assignments. Therefore, the target selection and engage phases used in the Sweeper ruleset are not used by the Escort ruleset.

护送规则集使用的处理方法与扫射规则集基本相同，主要的例外是护送规则集依靠被护送的平台来分配目标。因此，护航规则集不使用扫雷规则集中使用的目标选择和交战阶段。

### 4.7.17.2.1 Escort Lock Phase

4.7.17.2.1 护送锁定阶段

The lock phase is entered once a particular target is selected and executed repeatedly until lock on target is achieved. Targets are selected through the reaction phases. These reaction phases are scheduled either by an attacker engaging the escort or the escorted platform assigning an attacker to the escort. The first checks are made to determine whether the target is in track. If the target is not in track, the lock phase is rescheduled for the repeat time. The phase repeats until track is achieved or a time-out of 10 sec has elapsed, which allows time for temporary loss of track and attempting to maneuver to regain track. If track is not held and the time-out has been reached, the escort returns to flying its escort position with no phases executing. The escort also goes back to the escort position if track is held but the target has died. The engagement on the current target stops for both cases.

一旦选择了某个目标，就进入锁定阶段，并反复执行，直至锁定目标。通过反应阶段选择目标。这些反应阶段是由攻击者与护卫队交战或护卫平台指派攻击者与护卫队交战来安排的。 首先检查确定目标是否在轨道上。如果目标不在轨道上，则重新安排锁定阶段的重复时间。该阶段重复进行，直到取得轨道或超时10秒后，允许有时间暂时失去轨道并尝试机动恢复轨道。如果没有保持轨道，且超时时间已到，护航飞机就会回到飞行护航位置，没有任何阶段执行。如果轨道被保持但目标已死亡，护航队也回到护航位置。在这两种情况下，对当前目标的交战都会停止。

If the target is in track, the target is evaluated against the available weapons to determine whether lock can be achieved. For a weapon to be evaluated, the range to the target must be less than 90% of the maximum weapon's range. The weapon must also be capable against aircraft. A fire-and-forget missile is chosen in preference to a missile with semi-active guidance. Among the weapons that fall into each category, prioritization is based on the best Pk. If both weapons have equal Pks, the weapon with the highest velocity is chosen: i.e., the shortest intercept time to the target.

If lock is achieved, the launch phase routine is scheduled for the platform at its start time. This start time includes the reaction time to achieving lock-on-target and the time required for the missile to launch once the pilot pulls the trigger. The react-to-lock phase is also scheduled for the target for its start time.

如果实现了锁定，发射阶段的例行程序就会按其启动时间安排在平台上。这个启动时间包括实现锁定目标的反应时间和飞行员扣动扳机后导弹发射所需的时间。反应到锁定阶段也是为目标安排其起始时间。

If lock is not achieved, the lock phase will be rescheduled for its repeat time.

如果没有实现锁定，锁定阶段将重新安排其重复时间。

### 4.7.17.2.2 Escort Launch Phase

4.7.17.2.2 护航发射阶段

The launch phase evaluates whether the actual missile launch occurs. If the platform no longer has track on the target, the escort schedules the lock phase to attempt to regain lock on the target. If the target is dead and in track, the engagement stops and the escort returns to the flight.

发射阶段评估是否实际发射导弹。如果平台不再跟踪目标，护卫队就安排锁定阶段，试图重新锁定目标。如果目标已经死亡并在轨道上，则停止交战，护卫队返回飞行。

If track is still held and the target is still alive, the intercept time for the engagement is computed. This intercept time is computed based on the target continuing to fly at a constant velocity along its current velocity vector. If the range from the escort to the computed intercept point is within the range of the selected weapon, the weapon is launched; otherwise, the launch phase is rescheduled for its repeat time. If the weapon is to be launched, the current position of the escort is stored: i.e. the position from which the weapon started. The intercept phase is scheduled for the computed intercept time. If the launched weapon was a fire-and- forget missile, the escort does not have to maintain track on the target. If the escort is out of weapons, it transitions to the RTB ruleset to return home. If it still has weapons, it returns to its flight and wait for its next engagement.

如果轨道仍然保持，目标仍然活着，则计算交战的拦截时间。这个拦截时间是基于目标沿其当前速度矢量继续以恒定速度飞行而计算的。如果从护卫队到计算出的拦截点的范围在所选武器的范围内，则武器被发射；否则，发射阶段将重新安排其重复时间。如果要发射武器，则存储护卫队的当前位置：即武器开始的位置。拦截阶段被安排在计算出的拦截时间内。如果发射的武器是发射后即忘的导弹，护航队不必保持对目标的跟踪。如果护卫队没有武器了，它就过渡到RTB规则集回家。如果它仍有武器，则返回飞行，等待下一次交战。

### 4.7.17.2.3 Escort Intercept Phase

4.7.17.2.3 护送拦截阶段

The intercept phase evaluates the results of the engagement. Several straightforward criteria are evaluated at the beginning of the phase. If the intercept was canceled, the engagement attempt is logged as a failure. If the weapon has semi-active guidance and the escort is dead, the engagement attempt also is logged as a failure. In both cases, the event stream ends for the ruleset. If the target has died, the engagement is logged as a failure from death of the target and the escort returns to the flight.

拦截阶段对参与的结果进行评估。在该阶段开始时，会评估几个简单的标准。如果拦截被取消，则交战尝试被记录为失败。如果武器具有半主动制导，而护卫队已经死亡，则交战尝试也被记录为失败。在这两种情况下，该规则集的事件流结束。如果目标已经死亡，则从目标死亡开始记录为失败，护卫队返回飞行。

The intercept phase completion is reevaluated until the range from the launch position of the missile to the target is less than the range that the missile could have flown. The current position of the target is extrapolated to current simulation time to prevent problems with the granularity of state updates from flight processing. The range that the missile could have flown is computed by multiplying the time since launch of the missile by the weapon's average velocity. Once the missile range exceeds the range to the target, the engagement is judged to be over.

拦截阶段完成情况进行重新评估，直到从导弹发射位置到目标的距离小于导弹可能飞行的距离。目标当前位置推算到当前模拟时间，以防止飞行处理带来的状态更新颗粒度问题。导弹可以飞行的距离是通过导弹发射后的时间乘以武器的平均速度计算出来的。一旦导弹的射程超过目标的距离，则判断交战结束。

If the missile's range is less than the target's range, the intercept time is re- evaluated. The missile's current position is determined to be along a vector from the launch position to the current target's position. The distance of the missile from its launch position is the already computed maximum distance that the missile could have flown. The time required for the missile to complete the intercept is reevaluated using the same assumptions as the initial computation, except for computed current missile position and target position. If the computed intercept time is beyond the maximum lethal range of the weapon, as computed using the average velocity, the intercept phase is rescheduled for intercept at the lethal range. The intercept phase, otherwise, is rescheduled for the computed intercept time.

如果导弹的射程小于目标的射程，则重新评估拦截时间。导弹的当前位置确定为沿发射位置到当前目标位置的矢量。导弹从发射位置到目标位置的距离是已经计算出的导弹可能飞行的最大距离。除了计算出的导弹当前位置和目标位置外，导弹完成拦截所需的时间采用与初始计算相同的假设进行重新评估。如果计算出的拦截时间超过了利用平均速度计算出的武器最大杀伤范围，则重新安排拦截阶段，在杀伤范围内进行拦截。否则，则按计算出的拦截时间重新安排拦截阶段。

If the engagement is over and missile range is still not greater than the range to the target, the intercept is judged a failure from the drag maneuver of the target. If the missile range exceeds the range from launch to the target, the outcome of the engagement is evaluated, as described in Subsection 4.7.11.6.5. If it is a success, the target is logged as a success. If the weapon was a fire-and-forget weapon, the escort has no further processing to perform in this phase. The escort will have already returned to the flight and be either waiting for a new target or engaging a new target. If a semi-active weapon was fired, the escort may now be out of weapons. If it is out of weapons, the escort transitions to RTB and goes home. If it still has weapons, the escort reschedules its engage phase and goes after the target again. If the engagement was a success, the escort returns to the flight.

如果交战结束，导弹射程仍不大于到目标的射程，则从目标的拖曳机动判断拦截失败。如果导弹射程超过了从发射到目标的距离，则按4.7.11.6.5小节所述，对交战结果进行评估。如果是成功，则将目标记录为成功。如果武器是发射后即忘的武器，护卫队在此阶段没有进一步的处理。护卫队将已经返回飞行，并正在等待新的目标或与新的目标交战。如果发射了半主动武器，护航队现在可能已经没有武器了。如果没有武器，护航队就会转入RTB状态并回家。如果护卫队仍有武器，则重新安排交战阶段并再次追击目标。如果交战成功，护航飞机返回飞行。

### 4.7.17.2.4 Escort React to Engage Phase

4.7.17.2.4 护送反应至交战阶段：

This phase, which is very similar to the engagement reaction phase for the Fighter ruleset, is scheduled at its start time by an attacker entering the engage mode against the target: i.e., entering an attempt to lock on the target. This phase is scheduled also by the escorted rulesets—i.e., Bomber, Fighter-Bomber, or Wild Weasel—when the escort is to react to an engagement against the escorted platforms. The first check is to determine whether a reaction is performed. Two user-specified probabilities affect the decision to react. The first probability is when the escort has track information on the attacker. The additional knowledge of threats in the area would lead to a higher probability of the escort pilot recognizing a need to react to an attacker entering the lock phase against him. If the escort does not have track on the attacker, a lower probability should be entered to reflect a lessened situation awareness. If recognition of a need to react is negative, the react-to-engage phase is not rescheduled and no further actions are taken. If randomness is eliminated, the escort will always react.

If the reaction draw is positive, some decision-making is performed. If the escort is already engaged on the attacker or has a fire-and-forget missile in the air to the attacker, no reaction is performed. If the escort is already engaged on another target but lock has not been achieved, the ruleset breaks off the engagement. If lock had been achieved on the target, this phase is rescheduled for its repeat time to allow a reaction once the current engagement is completed.

如果反应平局为正，则进行一些决策。如果护卫队已经与攻击者交战，或在空中向攻击者发射了一枚 "发射后即忘 "的导弹，则不作出反应。如果护卫队已经与另一目标交战，但尚未实现锁定，则规则组会中断交战。如果目标已被锁定，则重新安排这一阶段的重复时间，以便在当前交战完成后作出反应。

If the escort is not engaged on another target or is able to break off its current engagement, the escort immediately attacks the attacker. The lock phase is scheduled for its start time.

如果护卫队没有与另一目标交战，或能够脱离当前的交战，护卫队就会立即攻击攻击者。锁定阶段的开始时间已排定。

### 4.7.17.2.5 Escort React-to Lock Phase

4.7.17.2.5 护航反应到锁定阶段

The react-to-lock phase is the reaction of the Escort ruleset to being locked on by an attacker's fire control radar. A determination is made whether to react. The user-supplied hero time is used. If the escort has had a missile in flight to the target for at least the hero time, the escort will not react. If a reaction is taken and the escort is currently engaging another target, that engagement is terminated. If the attacker is currently being engaged, the success of the engagement is determined by the intercept phase, although the execution of the drag maneuver greatly decreases any chance of the target still being in the FOV of the escort's sensor. The drag maneuver phase then is scheduled for the fighter at its start time.

反应-锁定阶段是护卫队规则集对被攻击者的火控雷达锁定的反应。做出是否反应的判断。采用用户提供的英雄时间。如果护卫队的导弹至少在英雄时间内已经飞向目标，护卫队就不会做出反应。如果采取了反应，而护卫队当前正在与其他目标交战，则该交战终止。如果攻击者当前正在交战，则交战的成功与否由拦截阶段决定，尽管拖曳机动的执行大大降低了目标仍在护卫队传感器FOV内的任何机会。拖曳机动阶段则安排在战斗机的开始时间。

### 4.7.17.2.6 Escort Drag Maneuver Phase

4.7.17.2.6 护航拖曳机动阶段

The drag-phase processing represents the completion of the drag phase. If track is currently held on the attacker, the escort immediately goes after the threat by scheduling the lock phase for the current time. If track is currently not held, the lock phase is scheduled for the attacker at its start time. The Escort continues executing the drag phase until no more missiles are in the air to the Escort.

拖曳阶段的处理代表拖曳阶段的完成。如果轨道当前在攻击者身上被保持，护卫队立即通过安排当前时间的锁定阶段来追击威胁。如果当前未持有轨道，则在攻击者的开始时间为其安排锁定阶段。护卫队继续执行拖曳阶段，直到没有更多的导弹在空中对护卫队进行攻击。

### 4.7.17.2.7 Escort User Rules Phase

4.7.17.2.7 护送用户规则阶段

The Escort ruleset utilizes the User Rules phase, which allows event-based management of the platform. The User Rules phase is described in Section 4.12.

护航规则集利用用户规则阶段，允许对平台进行基于事件的管理。第4.12节介绍了用户规则阶段。

## 4.7.17.3 Escort Received-Message Processing

4.7.17.3 护送收到的信息处理。

Communications for the Escort ruleset are not explicitly modeled. The only coordination with other platforms comes through the reaction phases of the escorted platforms. A bomber, fighter-bomber, or Wild Weasel causes a non-bomber wingman or subordinate to react to an engagement against the escorted platform. This coordination is performed through the react-to-engage phases of the non- bomber wingmen and subordinates and requires no messages to be sent or received.

护航规则集的通信没有明确建模。与其他平台的唯一协调是通过护航平台的反应阶段来实现的。轰炸机、战斗机-轰炸机或野鼬鼠导致非轰炸机僚机或下属对护航平台的交战做出反应。这种协调是通过非轰炸机僚机和下属的反应到交战阶段进行的，不需要发送或接收任何信息。

## 4.7.17.4 Escort System Configuration

4.7.17.4 护航系统配置

The Escort ruleset can be used only on aircraft. Sensors and weapons are required. Valid weapon types are air-to-air, towed decoy and anti-weapons. Communications devices are not used. An Escort cannot be a commander or have one. An Escort can be a wingman to a bomber, fighter-bomber, or Wild Weasel. Escorts cannot be flight leaders, and they do not use the target or asset lists.

护航规则集只能在飞机上使用。需要传感器和武器。有效的武器类型是空对空、拖曳式诱饵和反武器。不使用通讯装置。护航者不能是指挥官，也不能有指挥官。护航员可以是轰炸机、战斗轰炸机或野鼬鼠的僚机。护航者不能成为飞行领袖，也不使用目标或资产清单。

## 4.7.17.5 Escort Network Recommendations

4.7.17.5 护送网络建议

There are no requirements for networks, since the Escort does not have a message-processing capability.

对网络没有要求，因为护卫队没有信息处理能力。

# 4.7.18 Was Bomber Ruleset

4.7.18 什么是轰炸机规则集？

## 4.7.18.1 Was Bomber Overview

4.7.18.1 Was Bomber概述

The Was Bomber ruleset represents the capability of the AGAttacker, Fighter-Bomber, or Wild Weasel to act as an air-to-air combatant after transitioning from a bombing mission. The AGAttacker, Fighter-Bomber, and Wild Weasel rulesets can transition to the Was Bomber ruleset during a reaction to being engaged or at the completion of a drag maneuver.

Was Bomber规则集代表了AGAttacker、Fighter-Bomber或Wild Weasel在从轰炸任务过渡后作为空对空战斗员的能力。AGAttacker、Fighter-Bomber和Wild Weasel规则集可以在被交战的反应中或在完成拖曳机动时过渡到Was Bomber规则集。

## 4.7.18.2 Was Bomber Battle Management Phases

4.7.18.2 轰炸机战役管理阶段是否存在？

The lock, launch, intercept, and reaction phases of the Was Bomber are similar to the Escort battle management phases. However, the Was Bomber ruleset uses the target-select phase of the platform's mission ruleset. This allows these platforms to transition to Was Bomber to engage an air attacker and then transition back to their original rulesets to continue on their missions. While the platform is executing the Was Bomber ruleset, they jettison ordnance specified in the react-to- lock and react-to-engage phases of their mission rulesets.

Was轰炸机的锁定、发射、拦截和反应阶段与护航战役管理阶段类似。然而，Was Bomber规则集使用平台任务规则集的目标选择阶段。这使得这些平台可以过渡到Was Bomber来与空中攻击者交战，然后再过渡到原来的规则集继续执行任务。当平台执行Was Bomber规则集时，它们会投掷其任务规则集的反应锁定和反应接触阶段中指定的弹药。

### 4.7.18.2.1 Was Bomber Target-Select Phase

4.7.18.2.1 轰炸机是否处于目标选择阶段？

The Was Bomber executes its mission ruleset target-select phase. The target-select phase allows the Was Bomber to transition back to the mission ruleset if the platform still has capable weapons. If the platform does not have weapons to continue its mission, the target-select phase schedules the platform to return to base.

Was Bomber执行其任务规则集目标选择阶段。如果该平台仍有能力的武器，目标选择阶段允许Was轰炸机过渡到任务规则集。如果该平台没有武器继续执行任务，目标选择阶段则安排该平台返回基地。

### 4.7.18.2.2 Was Bomber Lock Phase

4.7.18.2.2 什么是轰炸机锁定阶段？

The lock phase is entered once a particular target is selected and is executed repeatedly until lock-on-target is achieved. Targets are selected through the reaction phases. These reaction phases are scheduled by the attacker engaging the platform, resulting in a transition to the Was Bomber ruleset.

一旦选择了某一目标，就进入锁定阶段，并反复执行，直到实现锁定目标。通过反应阶段选择目标。这些反应阶段由攻击者与平台交战时安排，从而过渡到Was Bomber规则集。

If the target is not in track, the lock phase is rescheduled for the repeat time. The phase repeats until track is achieved or a timeout of 10 sec has elapsed, which allows time for temporary loss of track and attempting to maneuver to regain track. If track is not held and the timeout has been reached, the Was Bomber reschedules its target-select phase. The Was Bomber also reschedules its target-select phase if track is held but the target has died. The engagement on the current target stops for both cases, and the target-select phase is scheduled for its start time.

如果目标不在轨道上，锁定阶段将重新安排重复时间。该阶段重复进行，直到达到轨道或超时10秒后，允许有时间暂时失去轨道，并尝试进行机动以重新获得轨道。如果没有保持轨道且超时时间已到，Was轰炸机就会重新安排其目标选择阶段。如果轨道被保持但目标已经死亡，Was轰炸机也会重新安排其目标选择阶段。在这两种情况下，对当前目标的交战都会停止，而目标选择阶段则安排在其开始时间。

If the target is in track, the target is evaluated against the available weapons to determine whether lock can be achieved. For a weapon to be evaluated, the range to the target must be less than 90% of the maximum weapon's range. The weapon must also be capable against aircraft. A fire-and-forget missile is chosen in preference to a missile with semi-active guidance. Among the weapons that fall into each category, prioritization is based on best Pk. If both weapons have equal Pk’s, the weapon with the highest velocity: i.e., the shortest intercept time to the target, is chosen.

如果目标在轨道上，则根据可用的武器对目标进行评估，以确定是否能实现锁定。要对武器进行评估，与目标的距离必须小于武器最大射程的90%。该武器还必须具有对抗飞机的能力。选用 "开火即忘 "的导弹要优先选择半主动制导的导弹。在属于每一类的武器中，根据最佳Pk来确定优先级。如果两种武器的Pk值相同，则选择速度最高的武器，即到达目标的拦截时间最短的武器。

If lock is achieved, the launch phase is scheduled for the platform at its start time. This start time includes the reaction time to achieving lock-on-target and the time required for the missile to launch once the pilot pulls the trigger. The react-to- lock phase is scheduled for the target at its start time. If lock is not achieved, the lock phase is rescheduled at its repeat time.

如果实现锁定，则按平台的启动时间安排发射阶段。这个起始时间包括实现锁定目标的反应时间和飞行员扣动扳机后导弹发射所需的时间。反应到锁定阶段在其开始时间安排给目标。如果没有实现锁定，锁定阶段将在其重复时间重新安排。

### 4.7.18.2.3 Was Bomber Launch Phase

4.7.18.2.3 什么轰炸机发射阶段？

The launch phase evaluates whether the actual missile launch occurs. If the platform no longer has track on the target, the Was Bomber schedules the lock phase to attempt to regain lock on the target. If the target is dead and in track, the engagement stops; and the target-select phase is rescheduled at its start time.

发射阶段评估实际导弹发射是否发生。如果平台不再跟踪目标，Was轰炸机就安排锁定阶段，试图重新锁定目标。如果目标已经死亡并在轨道上，则停止交战；并按开始时间重新安排目标选择阶段。

If track is still held and the target is still alive, the intercept time for the engagement is computed. This intercept time is computed based on the target continuing to fly at a constant velocity along its current velocity vector. If the range from the platform to the computed intercept point is within the range of the selected weapon, the weapon is launched; otherwise, the launch phase is rescheduled for its repeat time.

如果轨道仍然保持，目标仍然活着，则计算交战的拦截时间。这个拦截时间是根据目标沿其当前速度矢量继续以恒定速度飞行计算的。如果从平台到计算出的拦截点的距离在所选武器的范围内，则发射武器；否则，发射阶段将重新安排其重复时间。

If the weapon is to be launched, the current position of the platform is stored: i.e., the position from which the weapon started. The intercept phase is scheduled for the computed intercept time. If the launched weapon is a fire-and-forget missile, the platform does not have to maintain track on the target. If it is out of weapons, it transitions to the RTB ruleset. If it still has weapons, it reschedules its target- select phase.

如果要发射武器，则存储平台的当前位置：即武器开始的位置。拦截阶段安排在计算出的拦截时间内。如果发射的武器是发射后即忘的导弹，平台不必保持对目标的跟踪。 如果它的武器用完了，它就过渡到RTB规则集。如果它仍有武器，则重新安排其目标选择阶段。

### 4.7.18.2.4 Was Bomber Intercept Phase

4.7.18.2.4 轰炸机拦截阶段是否存在。

The intercept phase evaluates the results of the engagement. If the intercept was canceled, the engagement is logged as a failure. If the weapon has semi-active guidance and the Was Bomber is dead, the engagement is also logged as a failure. In both cases, the event stream ends for the ruleset. If the target has died, the engagement is logged as a failure from death of the target and the target-select phase is rescheduled for the Was Bomber.

拦截阶段评估约定的结果。如果拦截被取消，则记录为失败。如果武器有半主动制导，而Was Bomber已经死亡，则交战也被记录为失败。在这两种情况下，该规则集的事件流结束。如果目标已经死亡，则从目标死亡开始记录为失败，并重新安排Was Bomber的目标选择阶段。

The completion of the intercept phase is reevaluated until the range from the launch position of the missile to the target is less than the range that the missile could have flown. The current position of the target is extrapolated to current simulation time to prevent problems with the granularity of state updates from flight processing. The range that the missile could have flown is computed by multiplying the time since launch of the missile by the weapon's average velocity. Once the missile range exceeds the range to the target, the engagement is judged to be over.

拦截阶段的完成情况要重新评估，直到导弹发射位置到目标的距离小于导弹可以飞行的距离。目标当前位置推算到当前模拟时间，以防止飞行处理带来的状态更新颗粒度问题。导弹可以飞行的距离是通过导弹发射后的时间乘以武器的平均速度计算出来的。一旦导弹的射程超过目标的距离，则判断交战结束。

If the missile's range is less than the target's range, the intercept time is re- evaluated. The missile's current position is determined to be along a vector from the launch position to the current target's position. The distance of the missile from its launch position is the already computed maximum distance that the missile could have flown. The time required for the missile to complete the intercept is reevaluated using the same assumptions as the initial computation, except for computed current missile position and target position. If the computed intercept time is beyond the maximum lethal range of the weapon, as computed using the average velocity, the intercept phase is rescheduled for intercept at the lethal range. The intercept phase otherwise is rescheduled for the computed intercept time.

如果导弹的射程小于目标的射程，则重新评估拦截时间。导弹的当前位置确定为沿发射位置到当前目标位置的矢量。导弹从发射位置到目标位置的距离是已经计算出的导弹可能飞行的最大距离。除了计算出的导弹当前位置和目标位置外，导弹完成拦截所需的时间采用与初始计算相同的假设进行重新评估。如果计算出的拦截时间超过了用平均速度计算出的武器最大杀伤范围，则重新安排拦截阶段，在杀伤范围内进行拦截。否则，则按计算出的拦截时间重新安排拦截阶段。

If the engagement is over and missile range is still not greater than the range to the target, the intercept is judged a failure from the drag maneuver of the target. If the missile range exceeds the range from launch to the target, the outcome of the engagement is evaluated as described in Subsection 4.7.11.6.5. If the engagement is a success, the target is logged as a success.

如果交战结束，导弹射程仍不大于到目标的射程，则从目标的拖曳机动判断拦截失败。如果导弹射程超过了从发射到目标的距离，则按4.7.11.6.5小节所述评价交战结果。如果交战成功，则将目标记录为成功。

If the weapon launched is a fire-and-forget weapon, the Was Bomber has no further processing in this phase. The target-select phase has already been scheduled for the ruleset.

如果发射的武器是发射后即忘的武器，那么在这个阶段，Was Bomber没有进一步的处理。目标选择阶段已经被安排在规则集中。

If a semi-active weapon is fired, the platform may now be out of weapons. If it is out of weapons, the Was Bomber transitions to RTB. If it still has air-to-air weapons and the target is still alive, the Was Bomber reschedules its lock phase to engage the target again. If the platform does not have air-to-air weapons, its target-select phase is scheduled. The target select phase determines whether the platform has weapons to continue its mission or if it must return to base. If the engagement is a success, the ruleset schedules its target-select phase to continue its mission.

如果发射了半主动武器，该平台现在可能没有武器了。如果它没有武器，Was轰炸机就转入RTB。如果平台仍有空对空武器，而目标仍活着，则Was轰炸机重新安排锁定阶段，再次与目标交战。如果该平台没有空对空武器，则安排其目标选择阶段。目标选择阶段决定平台是否有武器继续执行任务，或者是否必须返回基地。如果交战成功，规则集就会安排其目标选择阶段继续执行任务。

### 4.7.18.2.5 Was Bomber React-to-Engage Phase

4.7.18.2.5 轰炸机是否处于反应-接战阶段？

The react-to-engage phase is scheduled at its start time by an attacker entering the engage mode against the Was Bomber. The Was Bomber first determines whether it will react to the engagement. Two user-specified probabilities affect the decision to react. The first probability is when the platform has track information on the attacker. The additional knowledge of threats in the area leads to a higher probability of the Was Bomber pilot recognizing a need to react to an attacker entering the lock phase against him. If the platform does not have track on the attacker, a lower probability should be entered to reflect a lessened situation awareness. If recognition of a need to react is negative, the react- to-engage phase is not rescheduled and no further actions are taken.

反应到交战阶段是由攻击者对Was Bomber进入交战模式安排其开始时间。Was Bomber首先决定是否对交战作出反应。两个用户指定的概率会影响反应的决定。第一个概率是当平台拥有攻击者的跟踪信息时。对区域内威胁的额外了解导致Was Bomber飞行员认识到需要对进入锁定阶段的攻击者做出反应的概率更高。如果平台没有对攻击者的跟踪，则应输入较低的概率，以反映较低的情况意识。如果认识到需要作出反应，则不重新安排进入反应阶段，不采取进一步行动。

If the reaction draw is positive, the status of the Was Bomber is checked. If randomness is eliminated, the Was Bomber will always react. If the Was Bomber is already engaged on the attacker or has a fire-and-forget missile in the air to the attacker, no reaction is performed. If the Was Bomber is already engaged on another target but lock has not been achieved, the Was Bomber breaks off the engagement. If lock has been achieved on the target, this phase is rescheduled for its repeat time to allow the Was Bomber to react when the current engagement is completed.

如果反应抽签为正，则检查Was Bomber的状态。如果消除随机性，则Was Bomber将始终进行反应。如果Was Bomber已经与攻击者交战，或者在空中对攻击者进行了发射和忘记的导弹，则不进行反应。如果Was Bomber已经与另一个目标交战，但没有实现锁定，Was Bomber将中断交战。若已锁定目标，则重新安排此阶段的重复时间，以便Was轰炸机在当前交战完成后作出反应。

If the Was Bomber is not engaged on another target or was able to break off the current engagement, the Was Bomber jettisons any ordnance specified in either its original mission ruleset. The Was Bomber lock phase is scheduled at its start time.

如果Was轰炸机没有与另一目标交战或能够脱离当前的交战，则Was轰炸机将抛弃其原任务规则中指定的任何弹药。Was Bomber锁定阶段是在其开始时间安排的。

### 4.7.18.2.6 Was Bomber React-to-Lock Phase

4.7.18.2.6 轰炸机是否处于反应-锁定阶段？

The react-to-lock phase is the reaction of the ruleset to being locked on by an attacker's fire control radar. A determination is made whether a reaction will occur. The user-specified hero time is used. If the platform has had a missile in flight to the target for at least the hero time, the Was Bomber does not react.

反应到锁定阶段是指规则集被攻击者的火控雷达锁定后的反应。判断是否会发生反应。采用用户指定的英雄时间。如果该平台至少在英雄时间内有导弹飞向目标，则Was Bomber不作出反应。

If the Was Bomber decides to react and it is currently engaging another target, that engagement is terminated. If the attacker is currently being engaged, the success of the engagement is determined by the intercept phase; however, the execution of the drag maneuver greatly decreases any chance of the target still being in the FOV of the platform's sensor. The Was Bomber jettisons ordnance specified by its Fighter-Bomber or Wild Weasel ruleset and schedules the drag phase at its start time. The Was Bomber continues executing the drag phase until no more missiles are in the air to the Was Bomber.

如果Was轰炸机决定作出反应，而它目前正在与另一目标交战，则交战终止。如果攻击者目前正在交战，则交战的成功与否由拦截阶段决定；然而，拖曳机动的执行大大降低了目标仍在平台传感器视野内的任何机会。Was Bomber 抛弃其 Fighter-Bomber 或 Wild Weasel 规则所指定的弹药，并在其开始时间安排拖曳阶段。Was Bomber继续执行拖曳阶段，直到没有更多的导弹飞到Was Bomber的空中。

### 4.7.18.2.7 Was Bomber Drag Maneuver Phase

4.7.18.2.7 什么是轰炸机拖曳机动阶段？

The drag-phase processing represents the completion of the drag phase. If track is currently held on the attacker and the Was Bomber still has air-to-air weapons, the Was Bomber immediately goes after the threat by scheduling the lock phase for the current time. If track is currently not held, the lock phase is scheduled for the attacker at its start time. If the Was Bomber has no air-to-air weapons, its target-select phase is scheduled to determine whether the platform can continue its mission or if it must return to base.

拖曳阶段的处理代表拖曳阶段的完成。如果当前对攻击者持有轨道，且Was Bomber仍有空对空武器，则Was Bomber立即通过安排当前时间的锁定阶段来追击威胁。如果当前没有保持轨道，则锁定阶段安排在攻击者的开始时间。如果Was轰炸机没有空对空武器，则安排其目标选择阶段，以决定该平台是否可以继续执行任务或是否必须返回基地。

## 4.7.18.3 Was Bomber Received-Message Processing

4.7.18.3 是否收到轰炸机 -- -- 信息处理。

Communications for the Was Bomber ruleset are not explicitly modeled.

Was Bomber规则集的通信没有明确的模型。

## 4.7.18.4 Was Bomber System Configuration

4.7.18.4 轰炸机系统配置情况

Platforms are not configured initially using the Was Bomber ruleset; however, the user can specify the timing for each of the Was Bomber phases.

平台最初并没有使用Was Bomber规则集进行配置；但是，用户可以指定每个Was Bomber阶段的时间。

# 4.7.19 Air Warning and Control System (AWACS)

4.7.19 空中警报和控制系统(AWACS)

## 4.7.19.1 AWACS Overview

4.7.19.1 AWACS概述

The function of a platform using the Air Warning and Control System (AWACS) ruleset is to use its sensor to gather track information. This information is then forwarded to other platforms. The AWACS ruleset does not represent any C2 capabilities; therefore, it is simply a source of track data.

使用空中预警和控制系统(AWACS)规则集的平台的功能是利用其传感器收集跟踪信息。然后将这些信息转发给其他平台。空中预警和控制系统规则集并不代表任何C2能力；因此，它只是轨道数据的一个来源。

## 4.7.19.2 AWACS Battle Management Phases

4.7.19.2预警系统战斗管理阶段

The AWACS has no battle management phases. The track information gathered by AWACS is forwarded as discussed in Subsection 4.6.

AWACS没有战斗管理阶段。如第4.6小节所述，预警系统收集的轨道信息将被转发。

## 4.7.19.3 AWACS Received-Message Processing

4.7.19.3 AWACS接收到的信息处理。

Platforms using the AWACS ruleset have no message-processing routines.

使用AWACS规则集的平台没有消息处理例程。

## 4.7.19.4 AWACS Systems Configuration

4.7.19.4 AWACS系统配置

The AWACS ruleset can be used on either a ground or air platform. A sensor and a communications device are required. Weapons are not used. AWACS platforms can neither have commanders nor be commanders. They do not use targets or assets and they cannot be flight leaders or wingmen.

AWACS规则集可以在地面或空中平台上使用。需要一个传感器和一个通信装置。不使用武器。AWACS平台既不能有指挥官，也不能成为指挥官。它们不使用目标或资产，也不能成为飞行队长或僚机。

## 4.7.19.5 AWACS Network Recommendations

4.7.19.5 AWACS网络建议

The recommended network type for AWACS platforms is simplex or broadcast network types, which support outgoing track messages only. Track recipients should be on the net with the AWACS.

AWACS平台推荐的网络类型为单工或广播网络类型，只支持外发跟踪信息。跟踪接收方应与AWACS联网。

# 4.7.20 Ground Support Module (GSM)

4.7.20 地面支持模块(GSM)

## 4.7.20.1 GSM Overview

4.7.20.1 全球通概述

The Ground Support Module (GSM) ruleset is currently set up to receive and delay track messages being forwarded.

地面支持模块(GSM)规则集目前设置为接收和延时转发的轨迹信息。

## 4.7.20.2 GSM Battle Management Phases

4.7.20.2 全球通战役管理阶段

The GSM ruleset utilizes no battle management phases. It delays the forwarded messages within its message-processing routine.

全球移动通信系统规则集没有使用战斗管理阶段。它在其消息处理程序中延迟转发消息。

## 4.7.20.3 GSM Received-Message Processing

4.7.20.3 GSM接收到的信息处理

The GSM message-processing routine receives and delays track messages.

GSM消息处理例程接收并延迟跟踪消息。

All other messages are ignored.

所有其他信息都会被忽略。

## 4.7.20.4 GSM System Configuration

4.7.20.4 GSM系统配置

The GSM ruleset can be used only for ground platforms. A communications device is required; sensors and weapons are not used. Platforms using the GSM ruleset cannot be commanders, flight leaders, or wingmen, and they cannot be commanded. Targets and assets are not used.

全球通规则集只能用于地面平台。需要一个通信设备；不使用传感器和武器。使用GSM规则集的平台不能成为指挥官、飞行队长或僚机，也不能接受指挥。不使用目标和资产。

## 4.7.20.5 GSM Network Recommendations

4.7.20.5 全球通网络建议

The GSM platform requires a link from the platform sending the message to be delayed and a link to the platform receiving the delayed message.

GSM平台需要从发送信息的平台发出延时信息，并与接收延时信息的平台建立链接。

# 4.7.22  Delay Ruleset

4.7.22 延迟规则集

## 4.7.22.1 Delay Overview

4.7.22.1 延迟概述

The Delay ruleset is used for platforms whose full functions in the command chain are not modeled. Generally, the Delay ruleset allows for the receipt of a message/assignment from a commander and the forwarding of that message to a subordinate. All of the rulesets that delay messages must be used carefully when large numbers of messages are to be delayed. The message-delay mechanism causes fragmentation of memory, resulting in long runtimes and a potential for the run not to be complete.

延迟规则集用于指挥链中的全部功能没有建模的平台。一般来说，延迟规则集允许接收来自指挥官的消息分配，并将该消息转发给下属。当需要延迟大量消息时，所有延迟消息的规则集都必须谨慎使用。消息延迟机制会造成内存碎片，导致运行时间过长，并有可能导致运行不完整。

## 4.7.22.2 Delay Battle Management Phases

4.7.22.2 延时战役管理阶段

The Delay ruleset utilizes no battle management phases.

延迟规则集利用的是无战斗管理阶段。

## 4.7.22.3 Delay Received-Message Processing

4.7.22.3 接收到的信息处理延迟

The message-processing routine for the Delay ruleset processes all messages. The routine delays the message if a delay has been specified and then forwards the message after the delay.

Delay规则集的消息处理例程处理所有消息。如果指定了延迟，该例程会延迟消息，然后在延迟后转发消息。

## 4.7.22.4 Delay System Configuration

4.7.22.4 延时系统配置

The Delay ruleset can be used on ground platforms. A communications device is required; sensors and weapons are not used. Platforms using the Delay ruleset cannot be commanders, flight leaders, or wingmen, and they cannot be commanded. Targets and assets are not used.

延迟规则集可以在地面平台上使用。需要一个通讯装置，不使用传感器和武器。使用延迟规则集的平台不能成为指挥官、飞行领袖或僚机，也不能被指挥。不使用目标和资产。

## 4.7.22.5 Delay Network Recommendations

4.7.22.5 延时网络建议

Platforms using the Delay ruleset should be linked to the platforms sending the information and the platforms receiving the message after the delay.

使用延迟规则集的平台应与发送信息的平台和延迟后接收信息的平台进行链接。

# 4.7.23 Generic Ruleset

4.7.23 通用规则集

The Generic ruleset is a structure used specifically for targets. This ruleset was created because every platform must have a ruleset. The Generic ruleset has no phases, no track file, and no message processing.

通用规则集是一个专门用于目标的结构。创建这个规则集是因为每个平台都必须有一个规则集。通用规则集没有阶段，没有轨迹文件，也没有消息处理。

The Generic ruleset can be used on aircraft or ground systems. Weapons, sensors, and communications devices are not used. Generic platforms cannot be commanders, flight leaders, or wingmen. They cannot have commanders. Targets and assets are not used.

通用规则集可用于飞机或地面系统。不使用武器、传感器和通信设备。通用平台不能是指挥官、飞行领袖或僚机。它们不能有指挥官。不使用目标和资产。

The Generic ruleset has no message-processing capability; therefore, there are no network recommendations for this ruleset.

通用规则集没有消息处理能力，因此，该规则集没有网络推荐。

# 4.7.24 No Command (NOCMD) Ruleset

4.7.24 无命令（NOCMD）规则组

## 4.7.24.1 NOCMD Overview

4.7.24.1 NOCMD概述

The NOCMD ruleset, which is set up for stand-alone platforms, has no phases and no track file. Its processing occurs in its message-processing routine, which does not process command messages but only surveillance messages. Since there is no track file, no processing is performed. The ruleset's functionality is basically the same as the Generic ruleset. The NOCMD ruleset should not be used.

NOCMD规则集是为独立平台设置的，它没有阶段性，也没有跟踪文件。它的处理发生在其消息处理例程中，它不处理命令消息，只处理监视消息。由于没有轨迹文件，所以不进行处理。该规则集的功能与通用规则集基本相同。不应使用NOCMD规则集。

## 4.7.24.2 NOCMD Battle Management Phases

4.7.24.2 NOCMD战役管理阶段。

The NOCMD ruleset utilizes no battle management phases.

NOCMD规则集没有利用战斗管理阶段。

## 4.7.24.3 NOCMD Received-Message Processing

4.7.24.3 NOCMD接收到的信息处理。

The NOCMD message-processing routine processes only track messages; it does not process command messages.

NOCMD消息处理例程只处理跟踪消息，不处理命令消息。

## 4.7.24.4 NOCMD System Configuration

4.7.24.4 NOCMD系统配置

The NOCMD ruleset can be used only on ground platforms. A communications device is required; sensors and weapons are not used. Platforms using the NOCMD ruleset cannot be commanders, flight leaders, wingmen, and they cannot be commanded. Targets and assets are not used.

NOCMD规则集只能在地面平台上使用。需要一个通信装置，不使用传感器和武器。使用NOCMD规则集的平台不能成为指挥官、飞行领袖、僚机，也不能指挥。不使用目标和资产。

## 4.7.24.5 NOCMD Network Restrictions

4.7.24.5 NOCMD的网络限制

The functionality of this ruleset requires no networks.

该规则集的功能不需要网络。

# 4.7.25 SAM Launcher

4.7.25 SAM发射器

## 4.7.25.1 SAM Launcher Overview

4.7.25.1 SAM发射器概述

The SAM Launcher ruleset models remoted launcher sites for the Flexible SAM ruleset. The Flexible SAM ruleset can be used in combination with the SAM Launcher ruleset to model launches from remoted sites, while maintaining the capability to have co-located launchers.

萨姆发射器规则集为灵活的萨姆规则集的远程发射站建模。灵活的SAM规则集可与SAM发射器规则集结合使用，以模拟远程站点的发射，同时保持同地发射器的能力。

The Flexible SAM performs target selection. During the weapon selection process, the Flexible SAM ruleset determines which of its launchers has the shortest intercept time to the target and assigns that launcher to the target. The Flexible SAM sends the assignment command to the launcher during the Flexible SAM launch phase, and the SAM launcher receives the assignment and launches the weapon. The Flexible SAM then evaluates the intercept outcome.

灵活的萨姆系统进行目标选择。在武器选择过程中，灵活萨姆规则组确定其发射器中哪一个对目标的拦截时间最短，并将该发射器分配给目标。在柔性SAM发射阶段，柔性SAM向发射器发送分配命令，SAM发射器收到分配命令后发射武器。然后，灵活SAM对拦截结果进行评估。

## 4.7.25.2 SAM Launcher Battle Management Phases

4.7.25.2 SAM发射器战斗管理阶段

The SAM Launcher has three battle management phases: launch phase, reload phase, and User Rules phase. The launch phase is activated upon receipt of an assignment command from the Flexible SAM. The reload phase is identical to Flexible SAM reload phase. The User Rules phase is executed in response to a user- defined set of triggers.

萨姆发射器有三个战斗管理阶段：发射阶段、重装阶段和用户规则阶段。发射阶段在收到灵活SAM的分配命令后启动。重装阶段与灵活SAM重装阶段相同。用户规则阶段是根据用户定义的一组触发器来执行的。

### 4.7.25.2.1 SAM Launcher Launch Phase

4.7.25.2.1 萨姆发射器发射阶段

The scheduling of the launch phase takes into account both the start time of the launch phase, representing the minimum time from receipt of the launch command from the Flexible SAM, and the minimum interval between launches. If the launch phase is not currently scheduled when a launch command is received, the launch phase is scheduled at the maximum of the start time of the phase and the minimum interval since the last launch. Once the phase executes, the next launch record is evaluated. If another launch record is waiting, the phase is scheduled for this launch at the maximum of the start time from the time the command was received and the minimum interval to the latest launch.

发射阶段的时间安排既考虑到发射阶段的开始时间，即从收到灵活机动飞行器的发射命令起的最短时间，也考虑到发射之间的最短间隔。如果在收到发射命令时，当前没有安排发射阶段，则按阶段的开始时间和上次发射后的最小间隔时间的最大值安排发射阶段。一旦阶段执行，下一个发射记录将被评估。如果有另一个发射记录在等待，则以收到命令后的开始时间的最大值和到最近一次发射的最小间隔为这次发射排定阶段。

The SAM Launcher launch phase is scheduled for its start time upon receipt of an assignment command from the Flexible SAM. When the Flexible SAM sends the command to the SAM launcher, the Flexible SAM remains in lock on the target. Upon receipt of the assignment command, the SAM launcher performs the engage action on the target.

萨姆发射器发射阶段在收到柔性萨姆发射器的分配命令后，即安排其启动时间。当灵活萨姆向萨姆发射器发出指令时，灵活萨姆保持对目标的锁定。萨姆发射器在收到分配命令后，对目标实施交战行动。

During the SAM launcher launch phase, the intercept time is recomputed. The SAM Launcher performs the launch action against the target, and the Flexible SAM intercept phase is scheduled to execute at the intercept time. If the SAM launcher’s weapons are depleted to a level that requires reloading and weapons are available for reload, the SAM launcher reloads.

在萨姆发射器发射阶段，重新计算拦截时间。萨姆发射器对目标执行发射动作，灵活萨姆拦截阶段被安排在拦截时间执行。如果萨姆发射器的武器消耗到需要重新装填的程度，且武器可以重新装填，则萨姆发射器重新装填。

When the Flexible SAM intercept phase executes, the engagement outcome is evaluated. The result of the engagement is logged to the SAM launcher, and the Flexible SAM performs the normal action. The Flexible SAM continues in target selection or other engagements.

当灵活的SAM拦截阶段执行时，对交战结果进行评估。交战结果被记录到萨姆发射器上，灵活萨姆则执行正常行动。灵活萨姆继续进行目标选择或其他交战。

### 4.7.25.2.2 SAM Launcher Reload Phase

4.7.25.2.2 萨姆发射器重装阶段

The SAM Launcher Reload phase is identical to the Flexible SAM reload phase.

萨姆发射器重装阶段与灵活萨姆重装阶段相同。

### 4.7.25.2.3 SAM Launcher User Rules Phase

4.7.25.2.3 SAM发射器用户规则阶段。

The SAM Launcher can execute the User Rules phase in response to the events including death of its commander, or the loss or regaining of its commander through communications checks. The User Rules phase provides several responses, including the selection of an alternate commander. The use of User Rules is described in Section 4.12.

萨姆发射器可以执行用户规则阶段，以应对包括指挥官死亡、或通过通信检查失去或重新获得指挥官在内的事件。用户规则阶段提供了几种反应，包括选择一个备用指挥官。第4.12节介绍了 "用户规则 "的使用。

## 4.7.25.3 SAM Launcher Received Message Processing

4.7.25.3 SAM发射器收到的信息处理

The SAM Launcher receives two types of command messages from the Flexible SAM: assignment commands and stop commands. The SAM Launcher also can receive communications checks from either a SAM LCS or Flexible SAM.

萨姆发射器从柔性萨姆接收两种类型的命令信息：分配命令和停止命令。 萨姆发射器还可以接收来自萨姆LCS或柔性萨姆的通信检查。

### 4.7.25.3.1 SAM Launcher Assignment Command

4.7.25.3.1 萨姆发射器分配指令

When an assignment message is received, the SAM launcher performs the Engage action; and the SAM Launcher’s launch phase is examined for possible scheduling as described in Section 4.7.25.2.1.

当收到分配消息时，SAM发射器执行Engage动作；并对SAM发射器的发射阶段进行检查，以便按照4.7.25.2.1节所述进行可能的调度。

### 4.7.25.3.2 SAM Launcher Stop Command

4.7.25.3.2 萨姆发射器停止指令

The launcher can also receive a stop command from the Flexible SAM. If the launcher has already launched, the launch is evaluated as a failure. If the launcher has not yet launched, a Stop Dead Target action is performed. This is the only condition under which a stop command would be sent.

发射器也可以从灵活的SAM接收停止命令。如果发射器已经发射，则评估为发射失败。如果发射器尚未发射，则执行停止死目标动作。只有在这种情况下才会发出停止命令。

### 4.7.25.3.3 SAM Launcher Communications Check

4.7.25.3.3 萨姆发射器通信检查

The SAM Launcher can receive communications checks from its commander, who can operate with either the SAM LCS or Flexible SAM ruleset. If a SAM Launcher loses communications with its commander, it can execute its User Rules phase to select an alternate commander.

萨姆发射器可以接收来自其指挥官的通信检查，而指挥官可以使用萨姆长航标或灵活萨姆规则集进行操作。如果萨姆发射器与其指挥官失去通信，它可以执行其用户规则阶段来选择一个备用指挥官。

## 4.7.25.4 SAM Launcher System Configuration

4.7.25.4 SAM发射器系统配置

The SAM Launcher must have surface-to-air weapons and a communications device if the propagation model is used. The SAM Launcher does not use sensors.

萨姆发射器必须有地对空武器，如果使用传播模式，还必须有通信装置。萨姆发射器不使用传感器。

The SAM Launcher must be commanded by a Flexible SAM or a SAM LCS ruleset; it cannot function independently. The SAM Launcher cannot have subordinates.

萨姆发射器必须由灵活萨姆或萨姆LCS规则组指挥，不能独立运作。萨姆发射器不能有下级。

## 4.7.25.5 SAM Launcher Network Recommendations

4.7.25.5 SAM发射器网络建议

The SAM Launcher must be linked to its commanding Flexible SAM. The code requires this link to function properly and, if the link does not exist, the Flexible SAM may have some unfinished engagements. The net should be of command type only.

萨姆发射器必须与其指挥的灵活萨姆相连接。代码要求这种链接才能正常运作，如果链接不存在，灵活萨姆可能会有一些未完成的约定。该网只应是命令型的。

# 4.7.26 SSM Commander

4.7.26 SSM指挥官

## 4.7.26.1 SSM Commander Overview

4.7.26.1 SSM Commander概述

The Surface-to-Surface Missile (SSM) Commander ruleset is used to model various C2 nodes associated with the counterforce command chain. The ruleset receives intelligence information from intelligence centers; border crossing authority from CTOC rulesets; and track, command, and acknowledgment messages from other SSM Commander rulesets within the command chain. Track and assignment messages are generated and sent to subordinate units. The Ground Attacker Commander is recommended instead of the SSM Commander.

地对地导弹(SSM)指挥官规则集用于模拟与反部队指挥系统有关的各种C2节点。该规则集从情报中心接收情报信息；从CTOC规则集接收越界授权；从指挥系统内其他SSM指挥官规则集接收跟踪、指挥和确认信息。生成跟踪和分配信息并发送给下属单位。建议由地面攻击者指挥官代替SSM指挥官。

## 4.7.26.2 SSM Commander Battle Management Phases

4.7.26.2 SSM指挥官战斗管理阶段。

The SSM Commander uses a target-select phase, which prioritizes commanded assignments and track information. The prioritization is commanded- assigned targets sorted by priority, and then track information sorted by perishability time. The SSM Commander limits the number of targets and/or tracks it will process in one target-select phase to the user-defined maximum tracks/targets assessed.

SSM指挥官采用目标选择阶段，对指挥分配的任务和跟踪信息进行优先排序。优先级是按优先级对指令分配的目标进行排序，然后按灭亡时间对跟踪信息进行排序。SSM指挥官将在一个目标选择阶段处理的目标和或跟踪信息的数量限制在用户定义的最大跟踪目标评估范围内。

The SSM Commander assigns targets to the available subordinate that can launch soonest against the target. If multiple subordinates are available to launch now, the closest subordinate is selected. The SSM Commander checks track messages to determine whether the system type being tracked is on its systems-to- target list. The systems to target list can be specified as target systems or target classes. A target is determined to be on the systems to target list by the following two-step process.

SSM 指挥官将目标分配给可以最快对目标发射的下属，如果现在有多个下属可以发射，则选择最近的下属。如果现在有多个下级可以发射，则选择最近的下级。SSM指挥官检查跟踪信息，以确定被跟踪的系统类型是否在其系统到目标列表中。系统到目标列表可以指定为目标系统或目标类。通过以下两个步骤确定目标是否在系统到目标列表中。

The lookup consists of checking the target system type or NCTR determination of target, and default or true class of the target. If using perceived information, the classification (which can be a weapon, system, or class) resulting from the NCTR process will be checked to determine if it matches an entry on the system of interest list. If the NCTR ID does not match, a second check of the list is performed using the default category of the target (default TM, default CM, default ABT, and default GND). If using truth information, the true system of the target will be checked to determine if it is on the list; and if it is not, the true class is next checked. If it is, the commander will assign it as a target. If the track system type is not in the systems-to-target list, the track is passed to all the commander's subordinate commanders that have the track in their AORs.

查询包括检查目标系统类型或目标的NCTR确定，以及目标的默认或真实等级。如果使用感知信息，则将检查NCTR程序得出的分类(可以是武器、系统或类别)，以确定其是否与感兴趣的系统清单上的条目相符。如果NCTR ID不匹配，则使用目标的默认类别（默认TM、默认CM、默认ABT和默认GND）对列表进行第二次检查。如果使用真实信息，将检查目标的真实系统，以确定其是否在列表中；如果不在列表中，则接下来检查真实类别。如果是，指挥官将把它分配为目标。如果跟踪系统类型不在系统到目标列表中，则将该跟踪系统传递给指挥官的所有在其AOR中拥有该跟踪系统的下属指挥官。

## 4.7.26.3 SSM Commander Message Processing

4.7.26.3 SSM指挥官信息处理

The SSM Commander performs battle management and interacts with other rulesets through messages. This subsection discusses the messages processed by the SSM Commander.

SSM指挥官执行战斗管理，并通过消息与其他规则集进行交互。本小节讨论SSM指挥官处理的消息。

### 4.7.26.3.1 SSM Commander Message Delays

4.7.26.3.1 SSM指挥官信息延迟

There are two types of message delays in the SSM Commander ruleset. The track message delay is used to account for the time spent determining whether a particular track is a target plus the time spent determining which subordinate should receive the commanded assignment or track.

SSM指挥官规则集中有两种类型的消息延迟。轨迹消息延迟用于说明确定某条轨迹是否为目标的时间，加上确定哪个下属应该接收指令任务或轨迹的时间。

The command message delay is used to account for the time spent determining which subordinate should receive a commanded assignment that was originated by a platform’s superior.

命令信息延迟用于核算确定哪个下级应该接受平台上级发起的命令任务所花费的时间。

### 4.7.26.3.2 Messages Sent by SSM Commander Ruleset 4.7.26.3.2.1 SSM Commander Track Data

4.7.26.3.2 SSM 指挥官规则集发出的信息 4.7.26.3.2.1 SSM 指挥官追踪数据

This message is sent when a SSM Commander either does not have target assignment authority or has a track in his trackfile that is not on his systems-of interest list.

当 SSM 指挥官没有目标分配权或其轨迹文件中的轨迹不在其兴趣系统列表中时，就会发送此消息。

#### 4.7.26.3.2.2 SSM Commander Border-Crossing Authority

4.7.26.3.2.2 特别安全机制指挥官过境管理局

This message is only sent to subordinate SSM Commanders. It is sent down the command chain to allow each level to change the weapon state.

此消息只发给下级SSM指挥官。它被发送到指挥链下，允许每一级改变武器状态。

#### 4.7.26.3.2.3 SSM Commander Commanded Assignment

4.7.26.3.2.3 SSM指挥官的指挥分配

This message is sent when an SSM Commander has processed a track and sends it to his subordinate as a target. This message is sent to a subordinate with the target in its AOR if the subordinate is an SSM Commander, or to a subordinate that has the target within weapons range if the subordinate is an SS FU. The message is sent to the subordinate closest to the target.

当SSM指挥官处理了一条轨道并将其作为目标发送给其下属时，就会发送该信息。如果下属是SSM指挥官，则向目标在其AOR内的下属发送该信息；如果下属是SSFU，则向目标在其武器范围内的下属发送该信息。该信息发给离目标最近的下级。

#### 4.7.26.3.2.4 SSM Commander Acknowledgment

4.7.26.3.2.4 SSM 指挥官确认。

This message is sent to commanders to indicate that an assignment command was received. A CANTCO is sent to the SSM Commander when it is determined that a target assignment could not be completed. This message is sent up the command chain to the SSM Commander that identified the target.

此信息发送给指挥官，以表明收到了一个分配命令。当确定目标任务无法完成时，会向SSM指挥官发送CANTCO。该信息会沿着指挥链向上发送给确定目标的SSM指挥官。

A WILCO acknowledgment is sent when a launch can be completed. This message is sent up the command chain to the SSM Commander that identified the target.

当发射可以完成时，将发送WILCO确认。该信息通过指挥链发送给确定目标的SSM指挥官。

### 4.7.26.3.3 SSM Commander Received Message Processing 4.7.26.3.3.1 SSM Commander Track Data

4.7.26.3.3 SSM 指挥官接收到的信息处理 4.7.26.3.3.1 SSM 指挥官跟踪数据。

This message is received from an intelligence center or another SSM Commander. When a commander with target assignment authority receives this type of message, it checks its systems-of-interest list to determine whether the track is a target. If the track is a target, the commander sends an assignment.

此消息是从情报中心或另一SSM指挥官处收到的。当拥有目标分配权的指挥官收到此类消息时，会检查其兴趣系统列表，以确定轨道是否为目标。如果该轨道是目标，指挥官就会发送任务。

When a commander does not have target assignment authority or the track was not identified as a target, the commander sends the track data to subordinate commanders if the track is in their AOR.

当指挥官没有目标分配权或轨道没有被确定为目标时，如果轨道在其AOR内，指挥官就会将轨道数据发送给下级指挥官。

#### 4.7.26.3.3.2 SSM Commander Border-Crossing Authority

4.7.26.3.3.2 特别安全机制指挥官过境管理局

This message is received from either a CTOC or SSM Commander ruleset and causes the weapon status for this commander to transition from "On Hold" to "Ready."

该消息是从CTOC或SSM指挥官规则集上收到的，并使该指挥官的武器状态从 "保持 "过渡到 "准备"。

#### 4.7.26.3.3.3 SSM Commander Assignment

4.7.26.3.3.3 SSM指挥官的任命

This message is received for tracks that have already been designated as a target. When a commander receives this type of message, it assigns one of his subordinates this track as an assignment or a launch command if the subordinate is a SSM Commander or an SS FU, respectively.

对于已经被指定为目标的轨道，会收到这种信息。当指挥官收到这种类型的信息时，如果他的下属是SSM指挥官或SS FU，则会将此轨道分配给他的一个下属，作为任务或发射命令。

#### 4.7.26.3.3.4 SSM Commander Acknowledgment

4.7.26.3.3.4 SSM 指挥官确认。

This message is received in response to a previously sent assignment message. Three types of acknowledgment messages can be received: 1) A received command message is received from a subordinate acknowledging receipt of a commanded assignment, 2) A CANTCO is received from a subordinate that has determined it cannot execute a commanded assignment, and 3) A WILCO is received from a subordinate that will complete a commanded assignment.

此消息是针对之前发送的任务消息而接收的。可以收到三种类型的确认消息。1）从下级收到确认收到命令任务的接收命令信息；2）从确定不能执行命令任务的下级收到CANTCO；3）从将完成命令任务的下级收到WILCO。

#### 4.7.26.3.3.5 SSM Commander Update Request Message

4.7.26.3.3.5 SSM 指挥官更新请求信息

When the SSM Commander sends a command message, it contains the number of the track entry on the target. The receiving platform then attempts to find the commanded track number in its track file. If the track number is not found, the receiving platform sends an update request message back to the SSM Commander for that track number. Upon receipt of the request message, the SSM Commander generates a commanded track update message that contains the track data for the target. The commanded track update also contains all the information of the previous command message, which will then be processed by the receiving platform after the track information has been processed.

当SSM指挥官发送命令消息时，它包含目标上的轨道条目编号。然后，接收平台会尝试在其轨道文件中找到命令的轨道编号。如果没有找到轨道号，接收平台就会向SSM Commander发送一个更新请求消息，以获取该轨道号。收到请求消息后，SSM 指挥官会生成一个包含目标的轨道数据的指令性轨道更新消息。指令轨迹更新还包含了前一指令信息的所有信息，接收平台在处理完轨迹信息后，将对该信息进行处理。

## 4.7.26.4 SSM Commander System Configuration

4.7.26.4 SSM指挥官系统配置

The SSM Commander ruleset requires a communications device. Sensors are optional, and weapons are not used. The SSM Commander can be the commander of a platform using the SSM Commander or SS FU ruleset and can be commanded only by another SSM Commander ruleset.

SSM指挥官规则集需要一个通信设备。传感器是可选的，不使用武器。SSM指挥官可以是使用SSM指挥官或SS FU规则集的平台的指挥官，只能由另一个SSM指挥官规则集指挥。

## 4.7.26.5 SSM Commander Network Recommendations

4.7.26.5 安全系统管理指挥官网络建议

A simplex link from the CTOC with message class command should be used. Simplex links from Intel CAC with message classes intelligence and track, provide the track information. Duplex links are recommended between the SSM Commander(s) and the SS FUs in the command chain, with message classes, track and command, between commanders and command between commanders and FUs.

应使用来自CTOC的带有消息类命令的单工链路。来自英特尔CAC的单工链路，信息类别为情报和跟踪，提供跟踪信息。建议在SSM指挥官和指挥链中的SS FU之间使用双工链路，在指挥官和指挥官与FU之间使用消息类、跟踪和命令。