翻译内容：4.7.1.2.2-4.7.1.5

## 4.7.8.5 Btry Network Restrictions

4.7.8.5 Btry网络限制

Duplex links to the commander and to Btry's subordinates are required. The message class for both links is command.

需要与指挥官和Btry的下属进行双工链接。这两个链接的信息类是command。

# 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:

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.

### 4.7.10.2.2 Red TEL Intercept Phase

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.

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.

## 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.

## 4.7.10.4 Red TEL System Configuration

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.

## 4.7.10.5 Red TEL Network Recommendations

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

# 4.7.16 Return-To-Base (RTB) Ruleset

## 4.7.16.1 RTB Overview

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.

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.

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

## 4.7.22.1 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

萨姆发射器重装阶段与灵活萨姆重装相同。

phase.

阶段。

### 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。