



## 2019 FIA FORMULA 3 CHAMPIONSHIP TECHNICAL REGULATIONS

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## **1. GENERAL PRINCIPLES**

- 1.1. All cars must comply with these FIA Formula 3 Championship Technical Regulations ("Technical Regulations") in their entirety at all times during each Event and during each Official Test described in the FIA Formula 3 Championship Sporting Regulations.
- 1.2. It is the duty of each competitor to satisfy the Technical Delegate and the Stewards of the Meeting that his car complies with these Technical Regulations in their entirety at all times during an Event.
- 1.3. All cars must be built and operated in accordance with the relevant sections of the Dallara user manual, Mecachrome engine user manual, Hewland gearbox user manual, F3 system manual, Pirelli F3 Prescriptions and Pirelli F3 Technical Preview documents.
- 1.4. All modifications which are not expressly authorised in the Technical Regulations, Technical bulletins, Dallara user manual, Mecachrome engine user manual, Hewland gearbox user manual F3 system manual and the spare parts catalogue, are forbidden.
- 1.5. All measurements must be made while the car is stationary on a flat horizontal surface.
- 1.6. Should any dispute arise as to the eligibility and/or compliance of any entered car, F3 Promoter will supply any element or knowledge deemed necessary for the purpose of scrutineering in order that comparative checking may be undertaken in order to prove conformity with the original standard car.
- 1.7. In event of doubt concerning any element of the Technical Regulations, competitors are entitled to seek written clarification from the F3 Promoter Technical Director, each clarification must be countersigned by the F3 Technical Delegate and by the Chairman of the Stewards. All such correspondence circulated to all competitors. Any such clarification will be considered the official understanding of the relevant Technical Regulation and will therefore be used by scrutineers as a complement to the FIA F3 Technical Regulations.
- 1.8. F3 Promoter may issue Technical bulletins that temporarily modify and/or supplement the Technical Regulations to apply at a single Event or Official Test, or at two (2) consecutive Event(s) or Official Test(s) taking place not more than one week apart. Each such Bulletin has to be countersigned by the FIA.

## **2. ELIGIBLE CARS**

- 2.1. The only rolling chassis permitted are those manufactured by Dallara under the specification Dallara F3 2019 in 2019 FIA Formula 3 Championship configuration and equipped with a Hewland MLI gearbox in 2019 FIA Formula 3 Championship configuration. Once supplied, no parts may be modified in any way whatsoever except where specifically permitted by these Technical Regulations or by a Technical Bulletin as defined in Article 1.8. Any such modifications will only be permitted if they are deemed absolutely necessary after a problem has been clearly identified.
- 2.2. Unless permitted under these Technical Regulations or otherwise specifically authorised no element may be added to nor removed from the car specification in its 2019 FIA Formula 3 Championship configuration. The original design and construction of the car must be preserved at all times.
- 2.3. Furthermore, any components supplied as part of the rolling chassis or gearbox which need to be replaced must be supplied by Dallara, Hewland or F3 Promoter and listed in one of the relevant and up to date spares parts catalogues, unless specifically authorised elsewhere in the Technical Regulations.

- 2.2. The action of adding / applying a surface treatment (i.e. shot peening, anodization, any kind of plasma coating, superfinishing) other than painting or adhesive film to a genuine component is considered as a modification of the component itself.
- 2.3. The complete car is divided into three types of parts. The parts are classified in the relevant spare parts catalogue.
- Type 1: These parts must be used exactly as supplied. Repairs may be carried out only by the manufacturer.
- Competitors must keep repair certificates provided by the manufacturer and make them available to the scrutineers at all Official Test or Event.
- Type 2: These parts may be modified or repaired only in the range described in the relevant spare parts catalogue, the relevant user manual or the present Regulations.
- Type 3: Parts that are not referenced as Type 1 or Type 2. These parts can be sourced by the competitor.
- 2.4. Type 3 parts may be replaced with equivalent or superior standard parts. If applicable, the thread type, size and pitch must remain the same. The use of locking wire is permitted.
- If applicable, the orientation of the bolt and nut is free for any type 3 part.
- Only Type 3 washers may be removed.
- 2.5. Washers may be added only for facilitating and improving the mechanical installation unless they have an influence on the set-up of the car or fulfill any additional function.

### **3. ENGINE**

- 2.6. The only engines permitted are the Mecachrome engines as type V6-F3. Once supplied, the engine and ancillaries supplied with it are considered as Type 1 parts and may not be modified in any way whatsoever except where specifically permitted by a Technical Bulletin as defined in Article 1.8.
- 2.7. Any revision, repair or change to the engine can only be carried out by Mecachrome.
- 2.8. The engine will be delivered with security seals in place and it is the responsibility of each competitor to ensure that these seals remain intact until the engine is returned to Mecachrome for revision or repair.
- 2.9. In the event of an engine being required by the Stewards in order to determine compliance with these Technical Regulations during the course of an Event, the relevant competitor must surrender the engine to the scrutineers as soon as such notification is given. Under these circumstances, F3 Promoter will be obliged to deliver another engine to the competitor concerned until the original is returned. The use of this spare engine will be at no cost to the competitor provided it is returned with its official seals intact.
- 3.1. For safety reasons, at any time, it is not permitted to run the engine without anybody on-board while car's rear wheels are laying on the ground.

### 3.2. ECU/GCU control

- 3.2.1. ECUs will be delivered with security seals in place and it is the responsibility of each competitor to ensure these seals remain intact.
- 3.2.2. At the beginning of each Event or Official Test, in accordance with the general timetable for the Event or Official Test, competitors must make their cars available to F3 Promoter in order to allow the data download and the upload of the appropriate software parameters to each ECU.
- 3.2.3. At the end of each Event and Official Test, all ECUs must be programmed 'race off' to limit the maximum engine speed to 5000 rpm.
- 3.2.4. If a malfunction of an ECU/GCU is suspected, F3 Promoter assistance staff may work on any such unit under the supervision of the scrutineers.
- 3.2.5. Only clutch maps and throttle maps specified in the FIA F3 Team Documentation SFTP Area may be used. These maps must always be used according to their prescriptions.

## 4. BODYWORK AND DIMENSIONS

- 4.1. The reference plane is the plane passing through the three contact pads of the scrutineering platform when the car is lying on these three contact pads through the three corresponding holes in its underneath skid block.
- 4.2. The front and central parts of the skid block fitted under the bodywork facing the ground must have at all time a thickness of 5mm +/- 1mm. In order to establish the conformity of the skid block after use, its thickness will only be measured in a single position around the periphery of each of the seven original skid block scrutineering holes.
- 4.3. Permitted changes to the original specification :
  - 4.3.1. The front wing assembly configuration may be changed, but only from one of the configurations described in the Dallara F3 user manual.
  - 4.3.2. The rear wing assembly configuration may be changed, but only from one of the configurations described in the Dallara F3 user manual.
  - 4.3.3. The side pod air ducts may be partially covered with adhesive tape on the stone guard or with tape or a flat plate on the forward face of the radiators for the sole purpose of optimising engine temperature.
  - 4.3.4. Apart from during the Monaco Event, the rear top biplane wing assembly angle is limited to a maximum of TBA degrees during races.  
The final value will be approved by the Steering Committee and published at least 2 weeks before the first Event.
  - 4.3.5. Front and rear brake ducts may be partially or fully covered with tape for the sole purpose of optimising brake temperatures.
  - 4.3.6. In addition to Articles 4.3.3 and 4.3.5, tape may be applied to fasteners or any component surface. In all cases, it must be clear that the tape has no function other than securing the fixings, colouring or protecting the parts to which it is attached. Apart from securing fasteners or unless expressly authorised in these Technical Regulations, Technical bulletins, Dallara user manual, Mecachrome engine user manual, Hewland gearbox user manual, F3 system manual, it is not permitted to apply tape to cover a junction between components, holes or cavities.

- 4.3.7. Any component inside the bodywork can be covered with thermal insulation material and/or rubbing material and/or electromagnetic protection material providing this insulation and/or rubbing material and/or electromagnetic protection material has no other function than protecting components against heat and/or chafing and/or electromagnetic perturbations.
- 4.3.8. It is permitted to grind marginally Type 2 or Type 3 components to prevent chafing.
- 4.3.9. Additional devices inside the bodywork for the sole purpose of cooling specific components may be added, provided they have been approved by the F3 Promoter Technical Director and the FIA Technical Delegate.
- 4.3.10. Any modification necessary to install a radio communication system is permitted provided it has been approved by the F3 Promoter Technical Director and the FIA Technical Delegate.
- 4.3.11. Providing their sole purpose is the protection of the retaining wheel cables or brake lines, it is permitted to add covers to the leading edge or trailing edges of the wishbones. Such covers must be made from the Dallara part reference GPCOM200110.
- 4.3.12. Glue and filler usage – see detailed specification in the FIA F3 Team Documentation SFTP Area
- 4.3.13. With regard to the height of the undertray, undertray fins, front end plates and barge boards, the reference dimensions are the followings:
- TBA mm from the reference plane to the bottom of all undertray fins.
  - TBA mm from the reference plane to the underneath surface of the undertray.
  - TBA mm from the reference plane to the bottom of front end plates.
  - TBA mm from the reference plane to the bottom of barge boards.
- The final value will be approved by the Steering Committee and published at least 2 weeks before the first Event.

The above dimensions must be considered as nominal values and respected for each side of the car at all times.

However, with regard to the dimensions outlined above, and only these dimensions, a tolerance of 5 mm, measured on the scrutineering platform, will be considered in order to cover all potential for discrepancy such as, but not being exclusively limited to:

- component manufacturing and repair tolerances,
- imperfection of chassis bottom flatness,
- measurement difficulties outside of the scrutineering platform.

During the above mentioned dimensional checks on the scrutineering platform, a load of 20 kg will be applied to the undertray on each side of the car.

Details of the measurement procedure can be found in the FIA F3 Team Documentation SFTP Area.

#### 4.4. Plank limitation

The number of wooden planks (reference F31903A006 and F31903A007) a competitor may use during the Events of the 2019 season is limited to the number of Events plus 2 for each the front and rear part of the plank. The planks will be marked with a serial number. Competitors have to declare the serial number of not previously used planks at least one hour prior the start of the session in writing to the FIA Technical Delegate. It is the responsibility of the Competitor to ensure that only marked and declared planks are used during any Practice session or the Races.

The only exception to the above is the Free Practice of the first Event during which an unregistered plank may be used.

## 5. WEIGHT

- 5.1. The weight of the car with the driver aboard wearing his complete racing apparel must not be less than TBA kg at all times during an Event or Official Test.

The final value will be established after all drivers and cars have been weighed during the first Official test. The value will be approved by the Steering Committee and published at least 2 weeks before the first Event.

- 5.2. Ballast may only be attached using the specific fixing points provided by Dallara. It must also be possible to fix seals if deemed necessary by the scrutineers.
- 5.3. With the exception of nitrogen or compressed air, no substance may be added to the car during the race. If it becomes necessary to replace any part of the car during the race, the new part must not weigh any more than the original part.

## 6. DATA ACQUISITION

- 6.1. Other than the systems permitted in Article 7.1, it is forbidden to add any kind of wireless data transmission systems.
- 6.2. Apart from the GPS device that is part of the Marshalling system supplied by F3 Promoter, any other GPS system is forbidden.
- 6.3. Disconnecting or removing any sensor fitted to the car as part of the original data acquisition system and listed in the F3 system user manual is forbidden.
- 6.4. It is the responsibility of the competitor to check the permanent functionality of all the sensors fitted on board as part of the car's original data acquisition system.
- 6.5. Defective sensors connected with the original data acquisition must be replaced prior to the next session or race.
- 6.6. It is the duty of each competitor to record and retain all data from the system of each car from the first Official Test of the current season in the format described in the F3 system manual. Copies of all such data must be made available to the scrutineers if deemed necessary and may be used for scrutineering purposes. Every running day the competitors must bring copies of the entire day data to F3 Promoter assistance staff no later than one hour after the end of the last session or the car's release from parc fermé.
- 6.7. Additional sensors may be fitted to the car provided the additional sensors are only logged to the original ECU/data-logger device and provided the fittings preserve the original instruments and electrical system. Any additional data logging device or CAN extension unit is not permitted.
- 6.8. Only the following sensors are allowed in addition to the car's original sensor equipment:
  - One brake pressure sensor
  - One pitot tube
  - Two laser ride height sensors
  - One steering angle sensor
  - Four damper travel potentiometers
  - One 3-axis accelerometer
  - One gyro sensor
- 6.9. Sensors and acquisition systems may only be fitted for the sole purpose of passive data acquisition.
- 6.10. Should the installation of a sensor require a modification of a genuine part of the car, a written approval must be obtained from the F3 Promoter Technical Director and the FIA Technical Delegate prior to its installation.
- 6.11. Apart from pitot tube no sensor must protrude from the structure or the bodywork of the car in the external air flow. The volume inside the side pods and the volume inside the rims are not considered as area submitted to the external air flow.
- 6.12. During Official Tests one onboard camera (no infrared camera) may be added to the car provided it is fitted in a safe position and securely mounted. Approval of the F3 Promoter Technical Director and the FIA Technical Delegate is required prior installation.
- 6.13. The remote flash disc recorder located in the cockpit may be removed by the drivers at the end of the qualifying session and both races.
- 6.14. A pitot tube can only be fitted in the pitot tube position specified in the Dallara manual.

## **7. ELECTRICAL SYSTEM**

- 7.1. Permitted changes to the original specification :
  - 7.1.1. Any modifications required to fit sensors and wires relating to a data acquisition system as described in Articles 6.7 and 6.8 above.
  - 7.1.2. Any modifications required to fit a driver communication system as described in Article 7.1.3. below.
  - 7.1.3. The addition of any radio equipment for the sole purpose of transmitting voice communication between a driver and his team.

## **8. GEARBOX - TRANSMISSION TO THE WHEELS**

- 8.1 The gear ratios defined in the FIA F3 Team Documentation SFTP Area must be used for the corresponding Event and Official Test. Only ratios available for the 2019 FIA Formula 3 Championship from F3 Promoter may be used.
- 8.2 Ramp angles may be changed but only by using the range of parts available for the 2019 FIA Formula 3 Championship from F3 Promoter.
- 8.3 In addition to, or instead of the genuine Hewland preload spacer(s) which can be surface ground, it is permitted to add circular shim(s) to preload the differential.  
This (or these) additional shim(s) must be a flat piece of steel without any teeth on its inside or outside periphery and have no other function than calibrate the axial thickness of the differential components.
- 8.4 All cars must have a reverse gear operable any time during an Event or Official Test by the driver when the engine is running.

## **9. SUSPENSION AND STEERING**

- 9.1. Suspension settings may be changed provided the adjustment margins specified by the supplier of the components are respected.
- 9.2. Mounting points and mounting brackets may not be modified. Camber angles may be adjusted by the use of spacers in the mounting of the hub to the upper wishbone both at the front and rear of the car, but only from the range specified by Dallara.
- 9.3. Only springs and torsion bars specified by Dallara and supplied by F3 Promoter may be used.
- 9.4. Adjustment of shock absorbers is free using the range available on the original part.
- 9.5. Damper valves may be changed but only by using the range of parts detailed in the Dallara user manual.
- 9.6. No modification of any sort to any damper sub-component is permitted.
- 9.7. Thrust bearings or spacers may be added between the springs and spring platforms.
- 9.8. Only packers, metal wool washers and bump rubbers may be fitted to damper shafts, Belleville washers or coil springs are not permitted.

## **10. OIL AND WATER SYSTEMS**

- 10.1. With the exception of the installation of quick release couplings on the gearbox oil cooling flexible hoses, no modification of the oil and water system are permitted.
- 10.2. Non-liquid cooling agents, such as dry-ice, may only be added inside the left-hand and right-hand radiator duct between the radiator screen and the front face of the radiator itself. Any design or construction the purpose of which is to hold non-liquid cooling agents anywhere else on the car is forbidden.  
However, non-liquid cooling agents within external devices which are attached to the car only when it is stationary are permissible.  
  
It is the Competitors responsibility to ensure that non-liquid cooling agents are contained within the above defined position when the car is running on track.

## **11. BRAKES**

- 11.1. Only brake discs distributed by F3 Promoter for the FIA Formula 3 Championship are permitted.
- 11.2. Only brake pads distributed by F3 Promoter for the FIA Formula 3 Championship are permitted.
- 11.3. One brake pressure sensor is mandatory, if another is fitted it will be considered as data acquisition optional equipment.

## **12. WHEELS AND TYRES**

- 12.1. The wheels are specific to FIA Formula 3 Championship and can only be purchased from F3 Promoter.
- 12.2. Wheel colour and the manufacturer's logo may not be changed.
- 12.3. Only tyres provided by the official tyre supplier may be used during Events or Official Test sessions. This applies to both wet and dry-weather tyres.
- 12.4. All tyres which are to be used during an Event or Official Test will be marked with a unique identification by the official manufacturer. The use of tyres without the appropriate identification is strictly forbidden.
- 12.5. Tyres can only be inflated with air or nitrogen.
- 12.6. The use of vacuum or any other means to drain the air or gas from a tyre fitted to a rim is strictly forbidden.
- 12.7. It is team's responsibility to ensure that wheels are properly fitted and to ensure that tyre valve caps are properly fitted when cars are running.
- 12.8. The minimum tyre pressures, as defined in the technical preview from the tyre manufacturer, have to be respected at any time during Events and Official Tests.  
– Details of the measurement procedure can be found in the FIA F3 Team Documentation SFTP Area.
- 12.9. The maximum camber values, as defined in the technical preview from the tyre manufacturer, have to be respected at any time during Events and Official Tests.  
– Details of the measurement procedure can be found in the FIA F3 Team Documentation SFTP Area.

### **13. COCKPIT**

- 13.1. Permitted changes to the original specification :
  - 13.1.1. Pedal position, pedal pads, master cylinder pushrod length and the relative working angles may be changed for driver comfort. The original pedal arms as supplied by the car manufacturer must not be modified.
  - 13.1.2. The type and position of the driver's heel or foot rest are free.
  - 13.1.3. Equipment for supplying the driver with drink may be fitted within the cockpit.
  - 13.1.4. A screen no higher than 40mm may be added at the front of the cockpit. The screen must be made out of F3 screens provided by the promoter.
  - 13.1.5. The position of the rear view mirrors may be changed provided the original parts and fixing points to bodywork are used.

### **14. FUEL AND LUBRICANTS**

- 14.1. Fuel and lubricants must conform to the specifications laid out in the Mecachrome, Hewland, Dallara and F3 system user manual.
- 14.2. No additives may be used unless they are specified in Mecachrome, Hewland, Dallara or F3 system user manual.
- 14.3. Any storage of fuel on board the car at a temperature more than ten degrees centigrade below the ambient temperature is forbidden.
- 14.4. The use of any specific device, whether on board or not, to decrease the temperature of the fuel below the ambient temperature is forbidden.
- 14.5. Scrutineers may take fuel samples for analysis at any time during an Event or an Official Test following the procedures set out in the Sporting Regulations.
- 14.6. Competitors must ensure that a 0.8kg sample of fuel may be taken from the car at any time during the Event.
- 14.7. Permitted fuel batches will be listed in the FIA F3 Team Documentation SFTP Area.

## 15. SAFETY EQUIPMENT AND DRIVER INSTALLATION

- 15.1. The safety equipment of the car has to be installed following the requirements of the Dallara user manual without any modifications and must be complying with the relevant FIA Homologation and FIA Standard which is mentioned in the Dallara user manual, at any time during an Event or Official Test.
- 15.2. Fire extinguisher:  
The driver must be able to trigger the extinguishing system manually when seated normally with his safety belts fastened and the steering wheel in place.  
Furthermore, a means of triggering from the outside must be combined with the circuit breaker switch. It must be marked with a letter "E" in red inside a white circle of at least 50mm diameter with a red edge.  
Extinguisher nozzles be installed in such a way that they are not directly pointed at the driver's face.
- 15.3. Master switch:  
The driver, when seated normally with the safety belts fastened and the steering wheel in place, must be able to cut off the electrical circuits to the ignition, all fuel pumps and the rear light by means of a spark proof circuit breaker switch.  
This switch must be located on the dashboard and must be clearly marked by a symbol showing a red spark in a white edged blue triangle.  
There must also be two exterior horizontal handles which are capable of being operated from a distance by a hook. These handles must be situated at the base of the main roll over structure on both sides of the car and have the same function as the switch described above.
- 15.4. Rear view mirrors:  
All cars must have two mirrors mounted so that the driver has visibility to the rear and both sides of the car.  
The FIA technical delegate must be satisfied by a practical demonstration that the driver, when seated normally, can clearly define following vehicles.  
For this purpose, the driver shall be required to identify any letter or number, 150mm high and 100mm wide, placed anywhere on boards behind the car, the positions of which are detailed below:  
Height: From 400mm to 1000mm from the ground.  
Width: 4000mm either side of the car centre line.  
Position: 10m behind the rear wheel centre line.
- 15.5. Safety Belts:  
It is mandatory to wear two shoulder straps, one abdominal strap and two straps between the legs. These straps must be securely fixed to the car and must comply with FIA standard 8853-2016.  
The safety belts supplied with the car may be changed for another type.  
The safety belt fixing system to the monocoque may not be changed or modified.

15.6. Seat, seat fixing and removal:

In order that an injured driver may be removed from the car in his seat following an accident, all cars must be fitted with a seat complying with the FIA Specification for Extractable Seats in Open Cockpit Cars.

The seat shell positioning system must not be modified.

Any seat made from foam must be covered with a non-flammable and non-combustible material.

Padding and minor modifications of the seat shell are allowed for driver's comfort providing all the functionality of the seat and its safety equipment is preserved.

An extraction test may be requested at any time by the scrutineers. The seat must be removable without the need to cut or remove any of the seat belt.

Once the buckle has been released it must be possible to extract the seat from the car without any further adjustment of the harness. The seat must be moved in a direction following the vertical axis of the car.

15.7. Driver position:

The driver's helmet and steering wheel must be arranged such that they lie below a line drawn between the front fixing axis of the secondary roll structure and a point 75mm vertically below the highest point of the principal roll structure.

In order to ensure that the driver's head is not unduly exposed and for him to maintain good lateral visibility he must, when seated normally and looking straight ahead with his head as far back as possible, have his eye visible when viewed from the side. The centre of gravity of his head must lie below the top of the survival cell at this position. When viewed from the side of the car, the centre of gravity of the driver's head will be deemed to be the intersection of a vertical line passing through the centre of his ear and a horizontal line passing through the centre of his eye.

15.8. Head and neck supports:

No head and neck support worn by the driver may be less than 25mm from any structural part of the car when he is seated in his normal driving position.

15.9. Cockpit padding:

All cars must be equipped with the headrest and the leg padding as supplied by the manufacturer.

The headrest must be located by two horizontal pegs behind the driver's head and two quick release fixings, which are clearly indicated and easily removable without tools, at the front corners. No tape or similar material may be used to cover the forward fixings of the headrest.

Behind the driver's helmet, only for driver comfort, an additional piece of padding no greater than 10mm thick may be attached to this headrest provided it is made from the same material.

On each side of the driver's helmet, only for driver comfort, an additional piece of padding no greater than 20mm thick may be attached to these headrests provided they are made from the same material which incorporates a low friction surface.

- 15.10. The driver, seated normally with his seat belts fastened and with the steering wheel removed must be able to raise both legs together so that his knees are past the plane of the steering wheel in the rearward direction. This action must not be obstructed by any part of the car.
- 15.11. From his normal seating position, with all seat belts fastened and whilst wearing his usual driving equipment the driver must be able to remove the steering wheel and get out of the car within 7 seconds and then replace the steering wheel in a total of 12 seconds. For this test, the position of the steered wheels will be determined by the scrutineers and after the steering wheel has been replaced steering control must be maintained.
- 15.12. Each rear light device with more than one LED not working has to be replaced before the beginning of the following session.
- 15.13. Seat shell crushable safety pad must not have a crushed surface bigger than 10% of the crushable pad surface when new.

## **16. ON-BOARD TELEVISION CAMERAS**

- 16.1. All participants will have to carry either a camera and its electronic equipment or a dummy camera and its dummy electronic equipment at all times during Events and Official Tests.
- 16.2. The position of the camera electronic equipment and dummy camera electronic equipment cannot be modified.
- 16.3. The position on the car of the on-board camera will be determined by F3 Promoter and approved by the scrutineers.

## **17. TIMING TRANSPONDERS**

- 17.1. All cars must be fitted with a timing transponder supplied by the officially appointed timekeepers. This transponder must be fitted in strict accordance with the instructions of the timekeepers.

## **18. ONBOARD SYSTEM CONFIGURATION FILES**

- 18.1. ECU configuration files that must be common to all cars during an Event or an Official Test will be listed in the FIA F3 Team Documentation SFTP Area.